POPULAR PHOTOGRAPHY

HOW TO MAKE GREAT PICTURES

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Rebel Revolution

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- EXCELLENT NOISE CONTROL
- NEW HYBRID AUTOFOCUS
- FASTER BURSTS FOR SPORTS

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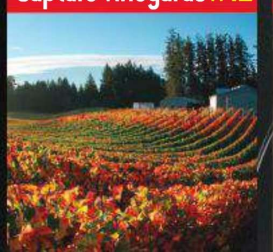

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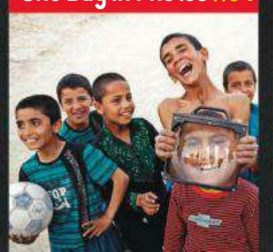

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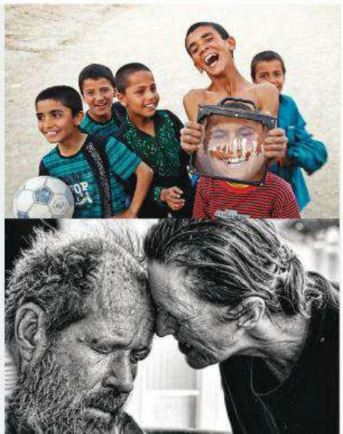

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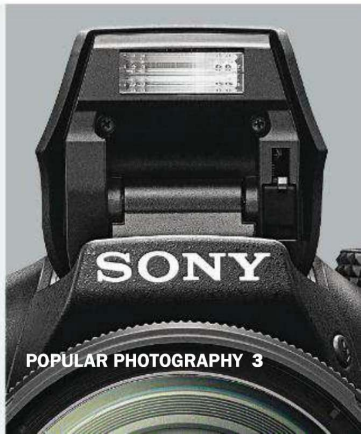

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NEWSSTAND COVER: SATOSHI (CANON); NAREN GUNASEKERA (UNDERWATER); PAUL KIRCHNER (VINEYARD); ALEXIS MIRE (GIRL); RODNEY LOUGH JR. (VOLCANO); ALI ZARE (BOYS). SUBSCRIBER COVER: MICHAEL SHANE FOR THE VERGE. THIS PAGE: SATOSHI (LENS); PAUL KIRCHNER (VINEYARD); ALEXIS MIRE (GIRL). PREVIOUS PAGE: JORGE MORENO JR. (WOMAN); RODNEY LOUGH JR. (LANDSCAPE); ALI ZARE (BOYS),COURTESY OF ADAY.ORG; ARNOLD DESPI (MEN), COURTESY OF ADAY.ORG.

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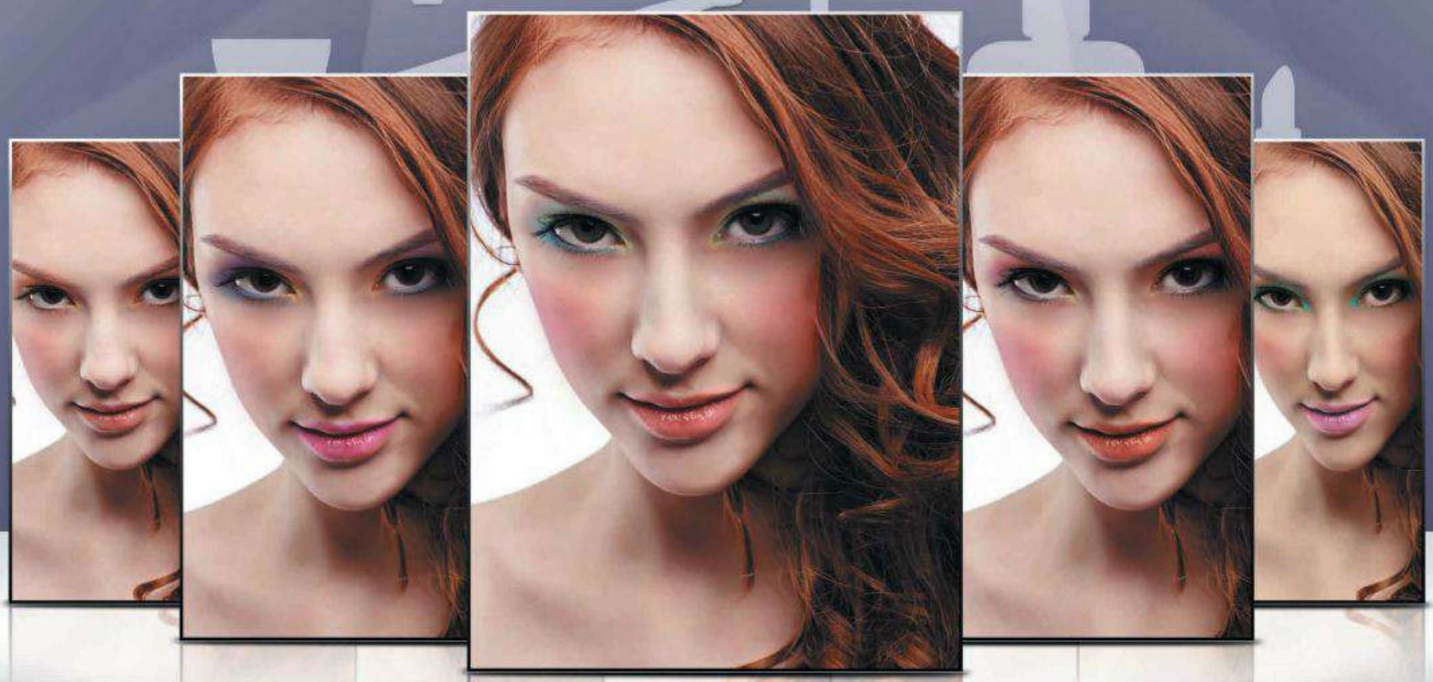

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Remembering How it Feels

The most compelling photography book I've looked at in a long time contains not a single picture. And that's just the point. *Photographs Not Taken*, edited by photographer Will Steacy and published this past spring by the Daylight Community Arts Foundation, includes first-person accounts by 62 photographers of the indelible images that never made it into their cameras. From Ed Kashi to Sylvia Plachy, Mary Ellen Mark to Andrew Moore, these professional shooters look back—some with regret, some with satisfaction—at the opportunities they missed and the ones they chose to forego.

Their reasons for not having taken a particular shot range widely. Many felt at the time that they'd witnessed an emotion too private to record, even though they had their cameras ready. Others were lost in the moment—living their lives rather than documenting every gesture.

Gregory Halpern, on being turned down by a stranger he asked to photograph on the street, "wondered if the picture could avoid being simple or mean, whether its bleakness could be redeemed by some sensitivity."

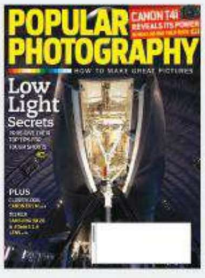
Timothy Archibald went to shoot a raucous St. Patrick's Day celebration, only to discover that he'd forgotten his film. He "photographed" for hours anyway, having overcome his shyness. Lisa Kereszi recalls the images she should have captured as a child and teenager instead of setting up Barbie scenes and taking postcard shots at the beach. "I was busy photographing my fantasies, and not my actual life."

All of these narratives focus entirely on the content of the "pictures" they describe. With only the words to go by, we're forced to consider not how a photograph looks, but what it says—and what it means.

This offers a change from the way in which I've found myself looking at images lately. The past several years at *Popular Photography* have kept my sights trained more on how photos look (and how they speak to viewers) than on what they imply. Writing and editing articles and books on tools and techniques—the what, where, when, and how—of making photos has kept me from thinking as much as I should about the reasons for making them, the why.

That's why I assigned our feature on A Day in the World (page 64) to myself. For this global photography project, people used cameras to describe their own lives and those of people around them. You won't find any information here about how the photos were made—only a little about what they are about.

Miriam Leuchter



NEWSSTAND Canon's latest entry in its blockbuster EOS Rebel line, the T4i, offers a whole lot of steps up. Read our full test on page 71. Photo by Satoshi.

SUBSCRIBER Michael Shane shot the Space Shuttle Enterprise in very low light for The Verge. Learn pro photographers' tips for shooting in the dark on page 58.

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PHILIP RYAN

IRON MAIDEN
After swimming 2.4 miles and cycling 112, sixth-place finisher Michelle Bremer powers through mile 17 of the 2012 Ironman U.S. Championship's 26.2 mile run. Our Technical Editor Philip Ryan captured the scene with a Canon EOS Rebel T4i set to ISO 200 and 1/800 sec, and a 70–200mm f/2.8L Canon EF lens racked out to 200mm and stopped down to f/4. For our full test of the T4i, see page 71.

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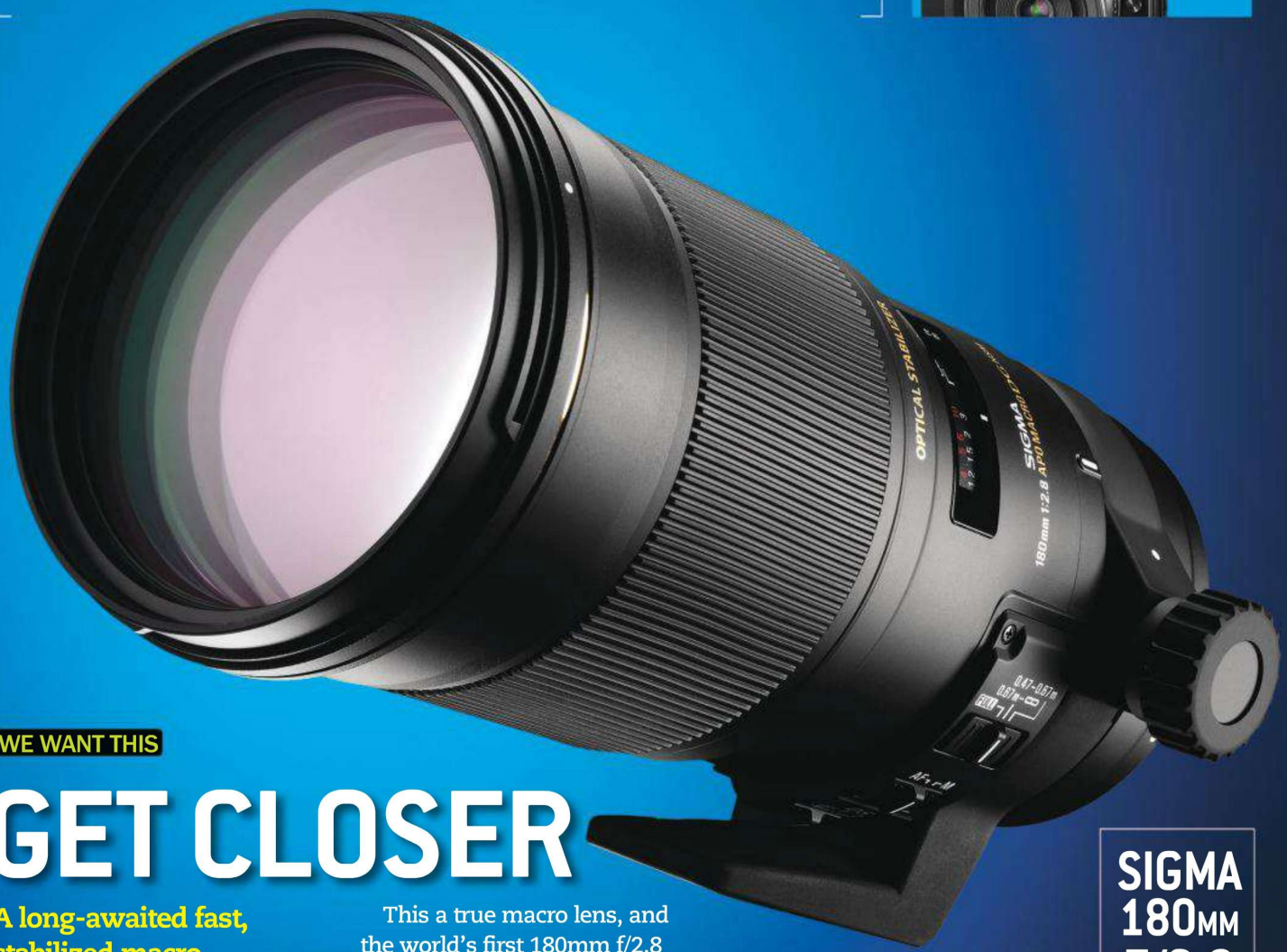

WE WANT THIS

GET CLOSER

A long-awaited fast, stabilized macro finally arrives

WE SAW IT at CES last January, but we had to wait until now for its release: Sigma's new 180mm f/2.8 APO Macro EX DG OS HSM lens is here. It succeeds the company's 180mm f/3.5, released a little more than 12 years ago, and bests it with plenty of improvements.

This a true macro lens, and the world's first 180mm f/2.8 with a 1:1 magnification ratio, says Sigma. That maximum aperture, combined with Sigma's Optical Stabilization system, should help keep your subjects sharp, despite its telephoto length.

Inside, there are three FLD low-dispersion elements to cut down on chromatic aberration, and the glass boasts Sigma's Super Multi-Layer Coating to minimize flare and ghosting.

Its quiet, speedy HSM motor is a nice feature on a lens like this, especially when getting close to insects or small animals. And since it focuses internally, the front element stays put and won't startle even the tiniest of subjects.

SIGMA 180MM F/2.8 MACRO OS

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HSM motor
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sigmaphoto.com

SATOSHI

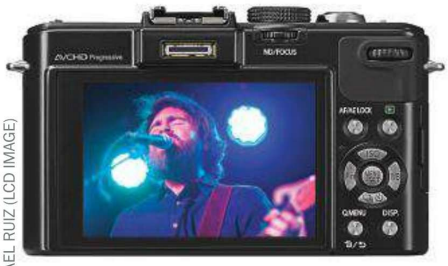
SMALL STAR

An advanced compact with a fast zoom

WE LOVED Panasonic's Lumix LX5 advanced compact, so we can't wait to test its follow-up, the LX7. Inside, it has a newly developed 10.1MP 1/1.7-inch sensor that Panasonic claims improves the signal-to-noise ratio over the LX5. Paired with the new Venus Engine, it also boasts improved noise reduction capabilities and continuous shooting modes as fast as 11 fps. The Leica-branded 3.8X optical zoom is the biggest draw, though, with its full-frame equivalent focal range of 24–90mm. At the wide end, it opens all the way to f/1.4, and drops only to f/2.3 when fully racked out.

Because this is an advanced compact, the LX7 offers a full suite of manual controls, including an aperture ring and focus lever, as well as a collection of creative shooting modes. The Intelligent Auto mode has been carried over, as has Intelligent HDR. It also captures RAW and adds a new level gauge.

Panasonic Lumix LX7
$499, street
www.panasonic.com



The LX7's 3-inch LCD screen has 920,000 dots, but there's also a built-in hot shoe, so you can add an electronic viewfinder later.

MATTHEW ISMAEL RUIZ (LCD IMAGE)

BUILT TO SHARE

A small ILC with better controls and Wi-Fi, too

SMACK IN the middle of Sony's array of ILCs sits the new 16.1MP Alpha NEX-5R. Replacing the NEX-5N, it has a body that should appeal to shooters who want to step beyond the simplicity of the NEX-F3. The 5R's pair of command wheels make manual shooting more enjoyable. A top ISO of 25,600 tackles low-light scenes. Meanwhile, a tiltable LCD that flips upward 180 degrees makes for easy self portraits.

The coolest part? The new Wi-Fi support, which will let you upload images to sites such as Facebook straight from the camera. Since the NEX-5R can operate as though it were wirelessly tethered to your smartphone, you can share your shots without taking your phone out of your pocket.

Sony Alpha NEX-5R
$650, street, body only; $750 w/ kit lens
www.sony.com

NEWS FEED

> Now shooters who carry Pocket-Wizard Plus III transceivers can organize them with PW's G-Wiz Squared bag, which holds up to four units, plus cables.

INSIDE TECH

New AF, too

The Alpha NEX-5R has a new hybrid autofocus system: Along with contrast-detection AF, the sensor contains 99 phase-detection points. The latter (similar to the systems in Canon's EOS M and Nikon's 1 series of ILCs) help determine subject distance, while the contrast AF zeroes in on the point of focus. Sony says this means faster AF than contrast detection alone.

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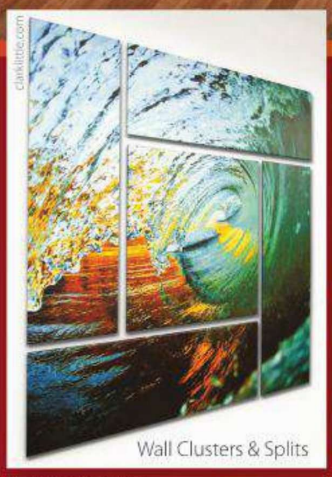

Portrait of Stephen W. Oachs by Steve Kurz - kurzphoto.com

"And here we have it -- a quadtych of my 551 mega-pixel multi-row panoramic of Bryce Canyon from the winter of 2010. This print is 14 x 7 feet and there is NO pixelation. If you stand even a few inches away it's perfectly clear and sharp. The resolution on this is stunning. My good friends at Bay Photo Lab spent the last few days creating this high gloss print on metal for my gallery at Aperture Academy."

- Stephen W. Oachs, apertureacademy.com

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TINY TELE

A new mirror lens weighs little but sees far

THIS 300MM F/6.3 lens for Micro Four Thirds is the equivalent of a full-frame 600mm supertele, yet measures just slightly more than 2x2.5 inches. How did Tokina do that? Through the miracle of not-so-modern technology: It's a mirror lens. These employ both refractive elements (lenses) and reflective ones (curved mirrors) to bounce the light path back and forth in them three times. This accounts for mirror lenses' most notable quirk: donut-shaped *bokeh*. This new lens focuses manually, and, like all optics of this type, has a single aperture: f/6.3 is your sole setting. Adjust exposure through shutter speed or by mounting 55mm neutral-density filters.

Tokina 300mm f/6.3 mirror lens
$369, street
tokinalens.com

A BRAND NEW 1

An incremental upgrade for Nikon's ILC

THERE'S A new camera in Nikon's 1 series of ILCs: the J2. Strikingly similar to its predecessor, the J1, it's still aimed at compact-camera shooters looking for an upgrade. Perhaps the best news is the price—about $100 less than the J1 was at launch. The 3-inch LCD gets a bump up to 921,000 dots, and the J2's finish has been updated to improve grippiness and handling. Because it is still built around a hybrid sensor with 10.1MP effective resolution, we do not expect a huge upgrade in image quality. Nikon also offers a new 1 series lens, a 11–27.5mm (30–74mm equivalent) f/3.5–5.6,, which streets for $190.

Nikon 1 J2
$550, street, with 10-33mm VR lens
www.nikon.com

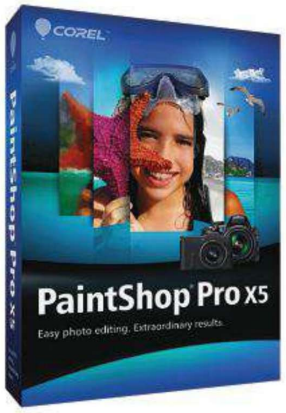
NEWS FEED

> The photograph "Bliss" by Charles O'Rear is said to be the most viewed photograph of all time. Never heard of it? Go to your nearest PC and check out the rolling field in the background of Microsoft Windows XP's default theme.

> This is Now, a new website to browse Instagram, lets you view photos by location in real time.

> Spruce up your portfolio with EspressoWork, a new service that lets you create a professional photo website and manage it from anywhere.

> The ever-expanding market of heavy-duty USB drives just got bigger with LaCie's RuggedKey. Able to withstand extreme temperatures and a 328-foot drop, the RuggedKey comes in 16GB or 32GB and starts at $40, street.



New Software

Corel PaintShop Pro X5

PaintShop Pro X5 ($80, direct; www.corel.com) is a real alternative to Adobe Photoshop and Elements; it's beginner-friendly and affordable, but full of sophisticated tools. This update brings a feature that splits a RAW file into three exposures, then lets you process it using PSP's lauded HDR tool. It also adds face-recognition and maps, putting it on par with its competition.

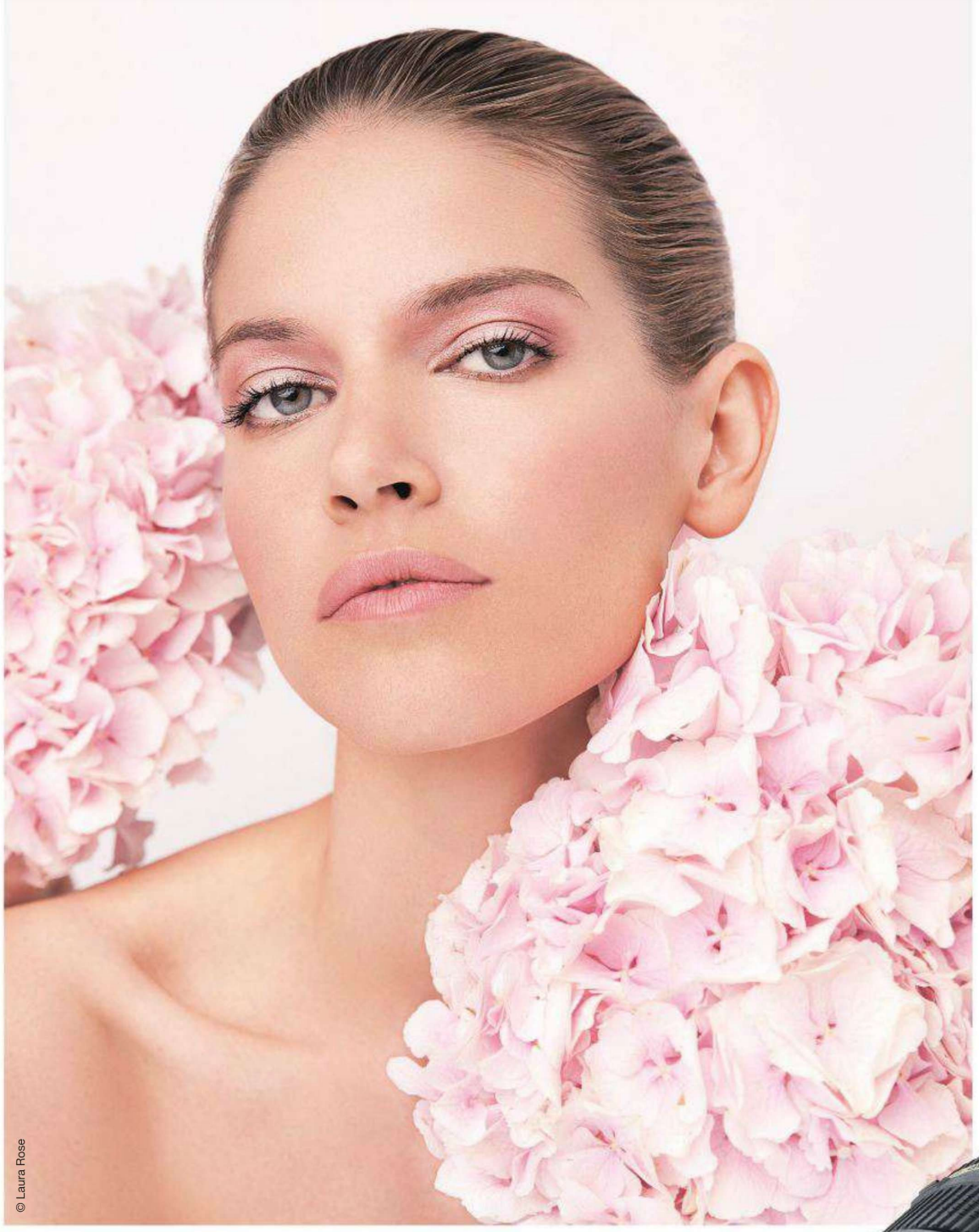
6.3%

The percentage that compact camera sales worldwide has dipped in the first half of 2012, compared to last year.

37.5%

The percentage that combined sales of SLRs and ILCs have grown in the same time period.

SOURCE: CIPA 2012



© Laura Rose

Focal length: 70mm Exposure: F/8 1/125 sec ISO100

NEW

Drawing on the beauty of light

SP 24-70mm F/2.8 Di VC USD

The world's first F/2.8 full-frame standard zoom lens with image stabilization. Explore the subtle aspects of beauty with Tamron's all new, high-speed standard zoom that gives you top in class optical quality while featuring VC anti-shake mechanism, fast, accurate and quiet USD AF system with full-time manual focus, and rounded 9-blade diaphragm for beautiful bokeh. Di design for use with full-frame DSLR cameras for excellent format versatility.

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*Sony mount without VC

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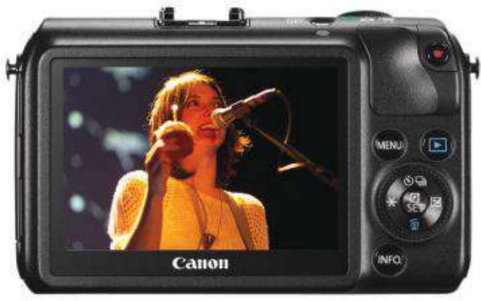


DIAL M FOR EOS

Canon's fashionably late entry to the ILC party

AFTER watching the market for interchangeable lens compact (ILC) cameras grow over the last few years, Canon has finally announced its own mirrorless model, and we can't help but wish it blew our minds a little bit more. Dubbed the EOS M, the camera seems to target people stepping up from compacts, as opposed to the more advanced shooters that Sony's Alpha NEX-7 was created to please.

The M sports the same 18MP APS-C sensor as Canon's EOS Rebel T4i, a hybrid 31-point phase/contrast detection AF system, and a brand-new lens mount called EF-M. Launched with the camera are the only two lenses yet available for the EF-M mount: its kit lens, the EF-M 22mm f/2 STM, and the EF-M 18–55mm f/3.5–5.6 IS STM. As with all EOS cameras, image stabilization for the EOS M is, unfortunately, not sensor-shift, but rather, lens-based. The Mount Adapter EF-EOS M ($200, street) lets you mount any EF or EF-S lens on the EOS M camera and retain AF communication.

Canon's Digic 5 processor crunches the data while a fixed 3-inch 1.04-million-dot LCD screen frames your shots. Sadly, there's no built-in viewfinder, and Canon doesn't plan to offer one. Since the camera has only a standard hotshoe and no accessory port (as in many other ILCs), it is unlikely that an EVF can to be added later. The hotshoe will accept all current Canon flashes, as well as the new Speedlite 90EX ($150, street), built to pair with this diminutive body. Powered by two AAA batteries, the flash isn't very powerful (GN 30 feet, ISO 100) and lasts for only about 100 shots per set of batteries. Of course, given the flash's small size and the fact that a few AAA batteries are easy to tote with you, the 90EX's battery life seems okay.

Borrowing some of the attractive cosmetic design of its PowerShot SX260 HS compact camera, Canon's EOS M carefully evokes a classic rangefinder, yet with a sleek, contemporary style.

Canon EOS M
$800, street, with 22mm f/2 lens
www.canoneos.com

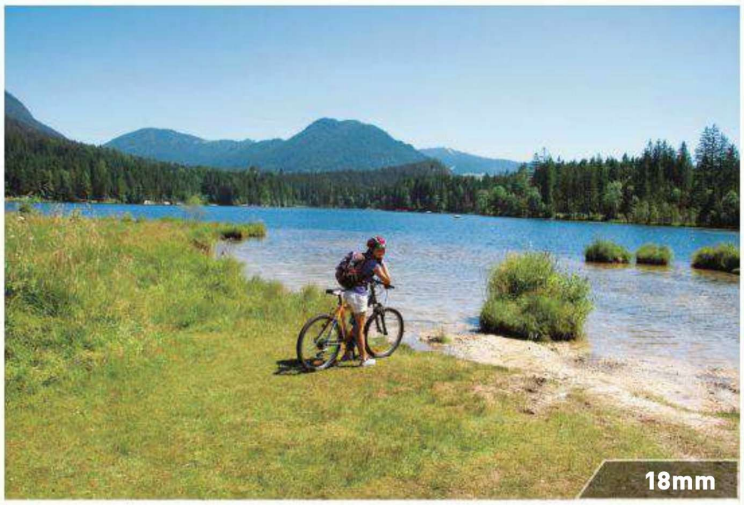
We were surprised that Canon decided to enter this market with a model on par with an entry-level DSLR. Canon may be aiming for families looking to capture video as much as stills. The EOS M's video, topping out at 1920x1080p30, should serve this market well when combined with the continuous AF enabled by STM lenses.

However, we've been seeing the ILC market trend toward more advanced bodies lately. So, while we look forward to seeing how the EOS M fares in our test lab, we also look forward to seeing what Canon has up its sleeve in terms of bodies, lenses, and accessories as this line develops. *—Philip Ryan*

MATTHEW ISMAEL RUIZ (LCD IMAGE)

Tamron 18-270mm Di II VC PZD Zoom

The Ultimate All-In-One Lens For Savvy Travelers

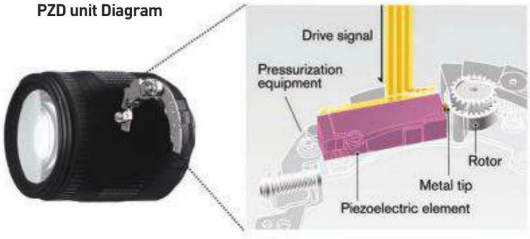


People that pack a digital SLR when traveling on vacation, or on the go for the holidays comprise an elite group of discriminating shooters committed to ultimate performance, seamless capture and imaging excellence. Fortunately, there is now an extended range, all-in-one zoom lens for APS-C-format DSLRs that will deliver all these sterling virtues and much more—the Tamron 18-270mm Di II VC PZD. It comes in a supremely versatile, surprisingly compact, lightweight package that incorporates all the latest performance-enhancing technological advances. It provides an astonishing 15X, 28-419mm equivalent, wide-to-super-telephoto range without changing lenses, focuses down to 19.3 inches (0.26X magnification at 270mm) for breathtaking close-ups and delivers class-leading sharpness, exquisite detail and superb image quality. It includes Tamron's exclusive PZD autofocus drive, and an enhanced Vibration Compensation (VC) image-stabilization system that provides up to a 4-stop anti-shake advantage when shooting handheld at long telephoto settings and at slow shutter speeds.

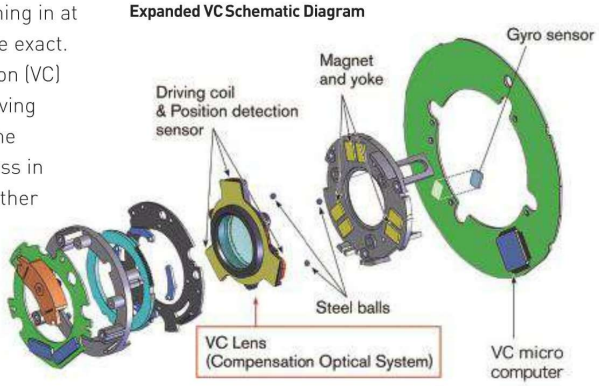
Advanced cutting-edge technology

Piezo Drive (PZD) is an exclusive Tamron innovation that uses high-frequency voltage to turn a ceramic piezoelectric element connected to a micro-motor to focus the lens more swiftly, silently and with greater precision than ever before. And because the new PZD mechanism is significantly smaller and lighter than a conventional AF drive, the lens is incredibly lightweight and compact for its vast range, measuring only 3.8 inches long, 2.9 inches in diameter and weighing in at less than a pound—15.87 ounces, to be exact. Tamron's latest Vibration Compensation (VC) system employs a new lightweight Moving Coil design that reduces the load on the drive system, enhancing responsiveness in counteracting camera shake while further reducing size and weight. Unlike traditional stabilization systems, it compensates for handheld camera shake in three planes, a big plus in achieving crisp images handheld at long-reach focal lengths and when shooting in low light. Now you know why the Tamron 18-270mm Di II VC PZD is the top choice of so many travel professionals, destination and events photographers, active lifestyle shooters and discerning enthusiasts that demand the ultimate in portability, versatility and imaging performance. It's the perfect all-in-one lens for traveling light and capturing the unexpected.

PZD unit Diagram



Expanded VC Schematic Diagram



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WHITE SANDS

MARCH 8–10, 2013

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There is no place on earth quite like White Sands National Monument. Join the Mentor Series this spring in southern New Mexico where the dune fields span 275 square miles and appear otherworldly before your lens. Allow Nikon professional photographers Mark Alberhasky and Wolfgang Kaehler to guide you in creating compelling images, as this tranquil landscape begs to be framed and captured from different perspectives and in changing light.

We will head out in the dark and be set up and ready to press the shutter when first light appears on the crystalline dynamic spectacle before us. The mentors will remind you how important it is to meter the scene, and compensate your exposure for the endless white pearlescent particles that make up the fascinating gypsum floor. Look for unique ways to represent the expanse and consider leading lines in your composition as the sand crystals mirror the sun's early morning glows when catching them at the right angle. Allow your mentors to help you look for ways to frame the yucca plants and capture the rising sun backlighting your subject.

Spend some time at Missile Range Park where a variety of missiles and rockets tested at White Sands are on display. Zoom in on the sharp aerodynamic angles and the shadows they cast on the desert floor as they can create unusual abstract shapes and add to your photographic experience. Or choose to step back with your wide angle and take in the entire field for effect. The mountains stand proudly in the background and contrast the human element represented here.

As the sun descends in the sky, we will head out into the dunes again and be prepared to create more images of the fascinating terrain in the warm golden soft light. Consider how the mountainous backdrop can play a role in your composition and how the grasses and other desert vegetation can also add to the overall image and give context to the various patterns and striations presented in the sand. Look closely and you will see the stories of the creatures that inhabit White Sands National Monument. Although the animals here are mainly nocturnal, they leave behind their distinct track and can assist in creating unique images of this incomparable region.

You certainly won't be at a loss for opportunity to change your viewpoint as we will continue on this trek to try new techniques and consider the varying subject matter that this park presents us. Don't miss this chance to photograph alongside the professionals and learn the best ways to represent this particularly astonishing topography. Sign up today!

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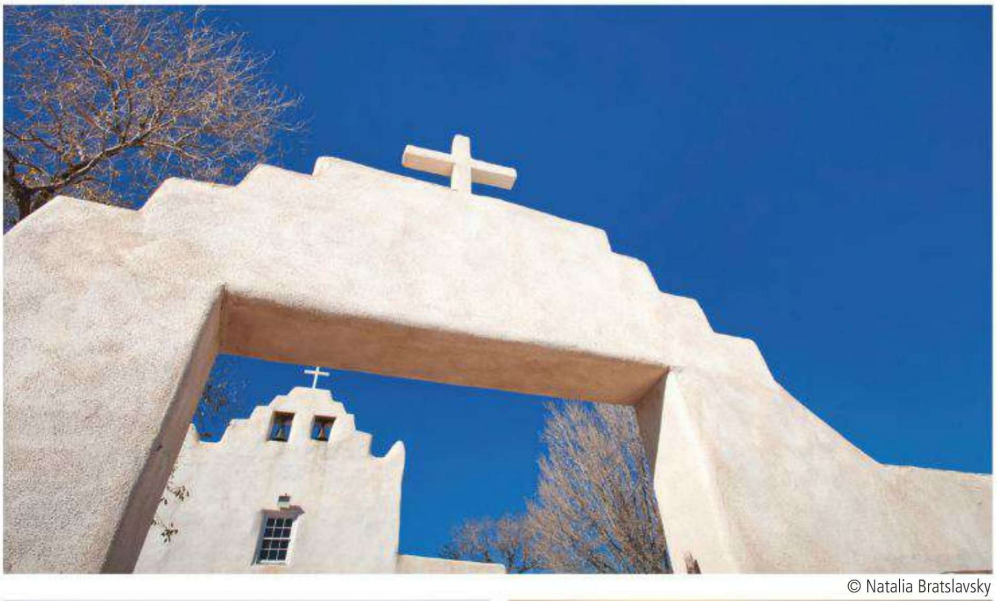

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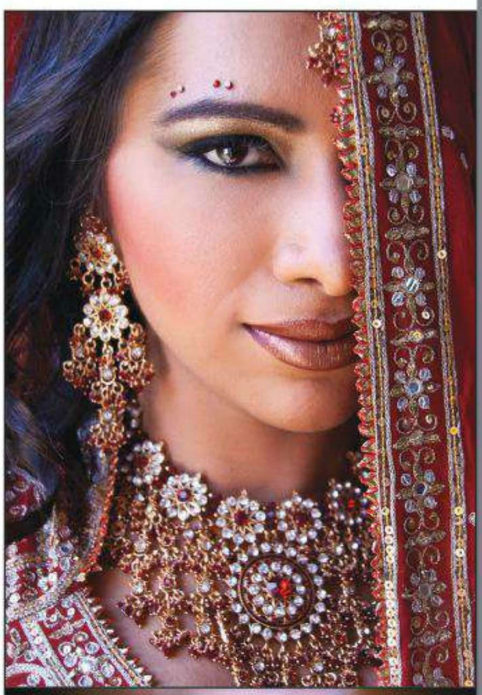
POPULAR PHOTOGRAPHY

2012 / 19th Annual • Readers' PHOTO CONTEST

The 19th Annual *Popular Photography* Photo Contest gives photographers the opportunity to win prizes and have their work recognized in the January 2013 issue of *Popular Photography*, the largest photo magazine in the world, as well as on our website, **PopPhoto.com**.



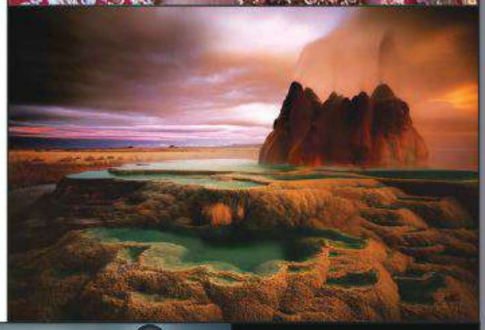
Categories

- ACTION/SPORTS
- ANIMALS
- CITIES/ARCHITECTURE
- LANDSCAPE/NATURE
- OBJECTS/STILL LIFE
- PEOPLE
- PEOPLE'S CHOICE - *PopPhoto* readers will vote for their favorite image! All entrants will automatically be entered in this category.

Submissions

The competition is open to work produced from June 2011—October 2012. All submitted artwork should be of reproduction quality.

ENTRY FEE: $10
DEADLINE: October 22, 2012



Credits (clockwise): Tamiz U. Rezvi, Rodney Lough Jr., Erich Chen, Ricardo Mejia, Kathy Hicks, Ricardo Pradilla

For a complete set of contest rules, prizes or to enter, please visit: **www.PopPhoto.com/readerscontest2012**

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The Readers' Contest, sponsored by *Popular Photography* magazine, a publication of Bonnier Corporation, is open only to individuals who are sixteen (16) years or older at time of entry, excluding residents of Cuba, Iran, North Korea, the province of Quebec, Sudan, Syria, and any other jurisdiction where this contest is prohibited by law. To enter and for complete Official Rules, visit http://www.popphoto.com/readerscontest2012 between May 14, 2012 and October 22, 2012.

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CONVERSATION, INSPIRATION, CONTESTS, AND YOUR QUESTIONS ANSWERED

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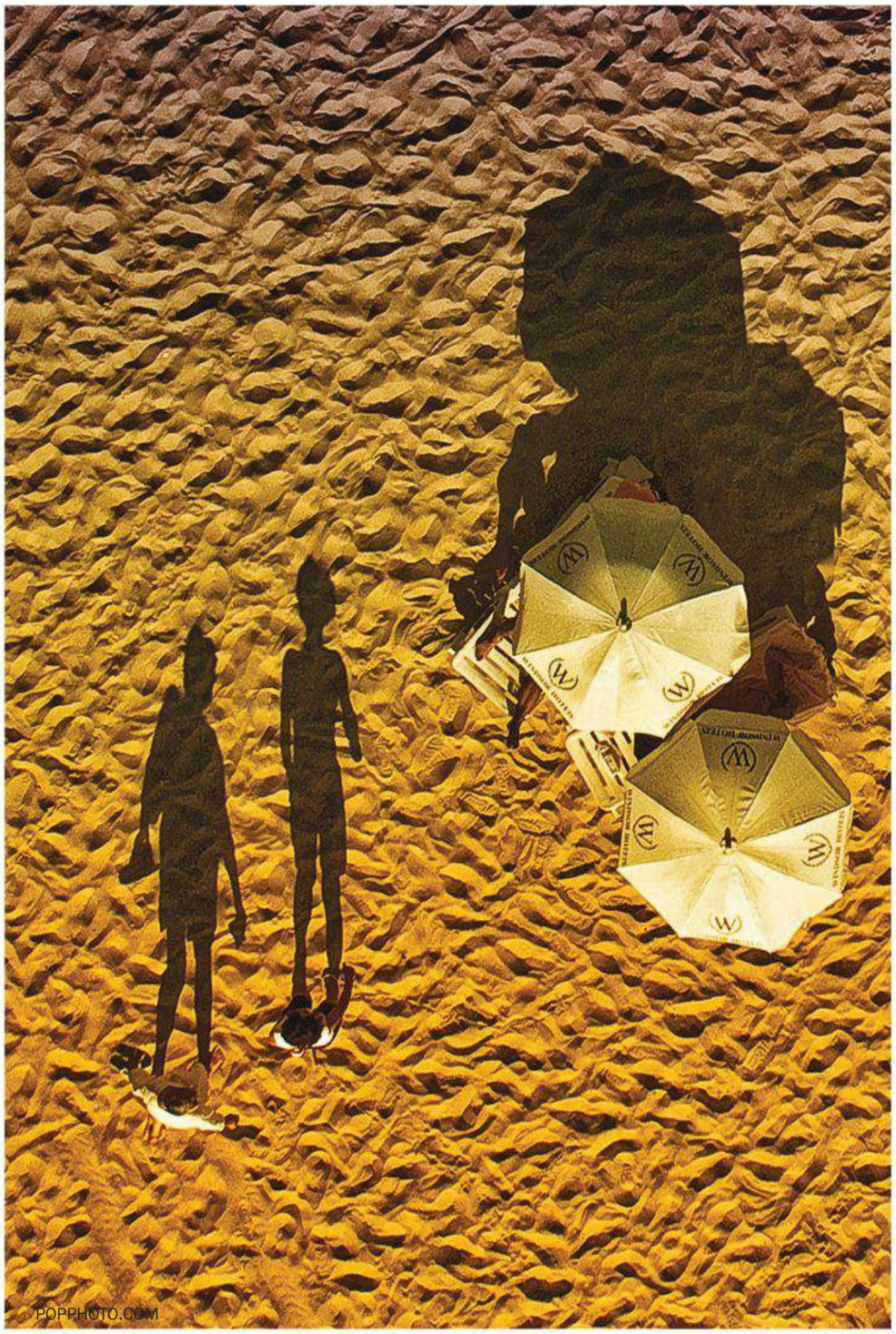
YOUR BEST (VERTICAL) SHOTS 32



CHICO LIMA

PHOTO CHALLENGE

SHADOW DRONE

A new perspective on the beach

WHEN FACED with an impossible shot, some people might look for a different angle, switch subjects, or simply give up. But Chico Lima, a 58-year-old photographer from Brazil, extended his reach with a six-rotored solution: a radio-controlled helicopter.

Starting with a Mikrokopter Hexacopter XL, Lima and a friend built a modular rig for his Canon EOS Rebel T2i and 18–55mm f/3.5–5.6 EF-S lens. Mounting a gyroscopically stabilized gimbal and a video/audio downlink to the copter, Lima angled his lens perpendicular to the ground, zipping over Copacabana beach in Rio de Janeiro.

"Flying" for the first time, he "was searching for interesting shadows, rather than physical themes," says Lima. Composing his shot wirelessly on a handheld LCD screen, his exposure (1/500 sec at f/10, ISO 100) elegantly captured these beachgoers' shady companions, winning our challenge to shoot a shadow as a subject. *—Matthew Ismael Ruiz*

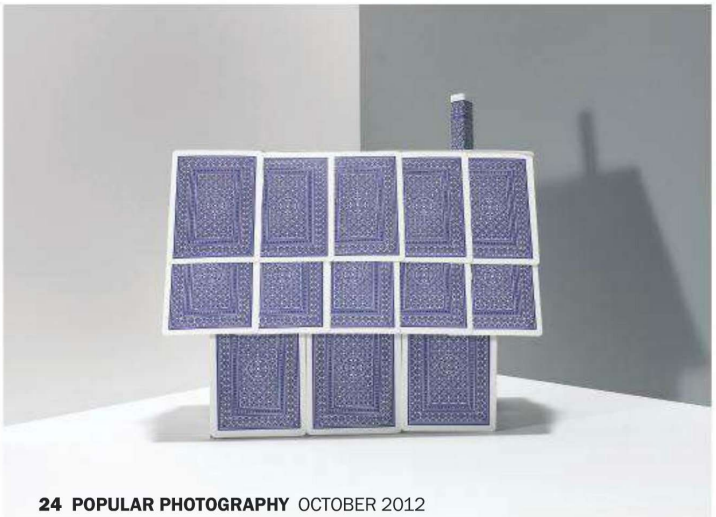
NEXT PHOTO CHALLENGE **In "The Dark Side" (page 58) we talk to pros unfazed by a dearth of light. Send us your low-light shots with available light by Oct. 31—you could earn $100 and your story here. Rules at PopPhoto.com/contests.**

Turn a Phrase

A photographer takes figures of speech literally

JUSTIN FANTL'S interest in idioms began last January with a conversation about babies. "A friend and I were discussing linguistics and child development," he explains. "We started talking about these common, everyday expressions which, taken at face value, wouldn't make sense to a child just learning to see the world."

The 32-year-old photographer soon



JUSTIN FANTL (6)

Justin Fantl is a pro photographer based in NYC and San Francisco.

became increasingly conscious of metaphoric idioms when he ran across them, particularly the ones with different common-sense interpretations, such as "a flash in the pan" or "a bird in the hand." He decided to capture them in photography, "to represent them as they might actually appear," he says.

He began putting together lists of expressions, puzzling out the visuals, and bringing various small household objects into his studio as props. In the back of his mind, children were the audience, so he decided to style and compose them in a manner that was as simple as possible.

After a few experiments, he hit upon the first image he felt was truly successful: "The Buck Stops Here." He says, "It captures the phrase in a way that also feels as if it's telling a story."

As the series progressed and Fantl began to research idioms online, he found himself more and more surprised by the range and nonsensicality of many common expressions. He realized how much their comprehensibility relates to experience: A "house of cards," so precarious, might seem like an interesting place to live to a childlike mind.

When he showed his photos to friends and colleagues, he found that even grown-up reactions varied: "Some people get them immediately, and others need a few minutes to figure them out." he says. "Some are more obvious than others, but there is also the aspect of connecting an idiom to its visual representation, rather than its underlying meaning."

Alhough he created his scenes with props in the studio, Fantl plans to work with models—human and otherwise—in the future. His goal is to eventually turn the whole series into a children's book.

"The 'elephant in the room' might be my biggest challenge," he says. "It's one of my favorite idioms, but it might also be fairly complicated to stage."

—Lori Fredrickson

See more work at www.justinfantl.com.

DEREK FELDMAN PHOTOGRAPHY

Inked Well

Shooting artwork on a living canvas

How did you start photographing tattoos? One of my hair and makeup stylists has amazing tattoo artwork all over her body—including her grandparents' portraits—and she asked me to photograph it. I agreed, but didn't know how to start. I was visiting the Chicago Art Institute when it hit me: I'll treat it like the Baroque masters. So I shot her in the Rembrandt style, trying to mimic that lighting. I really liked it and decided to do a series, photographing about a dozen people over six months.

How did your style evolve? Everything I do involves satire or a twist. In this case, photographing tattoos in the Baroque style was about two different art forms meeting in the middle. But the project evolved, becoming more raw and focused on the personalities. One girl I shot has a tattoo tribute to someone who passed away, and hearing her talk about it made me realize this was much deeper than I ever suspected. You might think that people with tattoos are bold—exhibitionists, even—but that's not the case. They're shy and down to earth. There's a dance to getting comfortable with how much of the body they want to show.

Brian Cummings moved behind the camera after working with pro photographers as a creative director. For a gallery of his tattoo photos, go to PopPhoto.com/cummings; see more of his work at briancummings.com.

What was your favorite ink to shoot? A pinup girl with her own tattoo. It's like looking into a mirror looking into another mirror—how far can it go? It's great art, and I love the whimsy. Plus, it's one of about 50 tattoos done by different artists on that body, and they all work together, like a mosaic.

Why is shooting tattoos challenging? Because you're photographing artwork. But the skin is not a flat surface, so there are highlights and shadows. If there are imperfections, you have to be very selective in the editing process when you "clean the file"—you don't want to disrupt the tattoo's sheen or linework because you're trying to remove a pimple. I want to make the image look good but, at the same time, I don't want to distort who that person is, and I sure as hell don't want to ruin the art.

What kind of gear do you use? A Canon EOS 5D Mark II, with 24–105mm f/4L Canon EF IS and 16-35mm f/2.8L II lenses. For the Baroque photographs, I used a Broncolor Grafit A2 1600-watt power pack, a couple medium-size reflectors with grids, and 4x8-foot white V-flats. The main light was a 20-inch beauty dish with a grid, to create a focal point but also vignette around the subject. I used indirect lighting for a soft fill light. For images with stark white backgrounds, I used a Profoto Acute Pac and D4 ringlight, and several medium reflectors with grids. I add a polarizer to the ringlight to reduce glare and medium reflectors to generate highlights and prevent flatness or shadows.

How has your career changed? I'm now "the tattoo guy." That's how photography is—if you do something in repetition, then that's what people remember you for, and I'm honored. I'm also incorporating the tattoo culture into a new series, portraying fairytale heroines as femme fatales; Snow White will be getting tattooed by Doc.

Are you inked? No. I cannot think of a single thing that I will like in 20 years. I'm so glad I didn't do it when my friends were getting them in the '90s, because I'd have some god-awful tribal barbed-wire nonsense on my arm. At this point, I feel like I'd ruin my credibility if I got one. I don't have any personal experience with the subject. I'm a voyeur.

—Interviewed by Julie Leibach

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Kevin Ames captures a visual delight with Sigma's 105mm OS macro lens.

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For more than 50 years Sigma has been acclaimed for offering lenses that combine unsurpassed imaging performance, innovative features that expand creative options and outstanding value. The four superb f/2.8 Sigma EX DG Macro lenses on this page carry forth that proud tradition by doing more than capturing breathtaking close-ups at magnifications up to 1:1. They also bring the exceptional imaging performance of prime macro lenses to subjects as diverse as portraits, wildlife, low-light scenes, travel and sports. All feature digitally optimized (DG) construction and advanced multi-layer coatings to provide crisp, flare-free imaging with full-frame or APS-C-format DSLRs. They're elegantly finished in Sigma's distinctive anti-reflective EX finish to denote their superior optical quality. And all EX lenses incorporate advanced technology such as SLD (Special Low Dispersion) and FLD (fluorite equivalent) glass where needed to achieve exquisite sharpness, brilliance, and color correction. Sigma is a privately held family firm whose CEO is the founder's son and its lenses are carefully crafted in Japan, ensuring the company's enduring commitment to providing lenses of the very highest quality, reliability and performance.

SIGMA 70MM F/2.8 EX DG MACRO

This ultra-sharp, elegantly compact medium telephoto macro focuses down to 10.1 inches (1:1) for spectacular close-ups, and it's also a great 105mm equivalent portrait lens on APS-C-format cameras, providing very shallow depth-of-field at wide apertures for gorgeous effects and beautiful bokeh. Two SLD elements and a floating focus system yield outstanding optical performance, and there's a Focus Limiter Switch that can enhance AF speed and accuracy.

SIGMA 105MM F/2.8 EX DG OS HSM MACRO

A sleek, classic 105mm macro, it's great for portraits, close focuses down to 1:1 and provides a wide f/2.8 aperture for shooting in low light or enhancing pictorial effects. It employs special SLD glass and improved DG design to deliver crisp, detailed, distortion-free images over its broad range. It incorporates Sigma's proprietary Optical Stabilization (OS) for shake-free handheld shooting and a "focus free" design providing internal AF without moving the manual focus ring.

SIGMA 150MM F/2.8 EX APO DG HSM OS MACRO

This unique lens delivers creative flexibility, capturing stunning portraits with soft, natural backgrounds, landscapes, action and extreme close-up images in virtually any light. It delivers superb image quality from infinity to 1:1 thanks to a Floating Internal Focus (FIF) system, three Special Low Dispersion (SLD) glass elements and built-in Optical Stabilization (OS). Its APO design captures every color nuance with extraordinary brilliance.

SIGMA 180MM F/2.8 APO MACRO EX DG OS HSM

A new kind of super-telephoto macro lens, it combines exceptional reach, provides the convenience of a long working distance when shooting extreme close-ups, and an ultra-wide f/2.8 aperture for beautiful bokeh and shooting in low light. Its Optical Image Stabilizer (OS) ensures sharp handheld shots, its APO design delivers ultimate color correction, and its Hyper-Sonic Motor (HSM) provides swift, precise, silent AF. Three FLD glass elements and internal focus deliver superb imaging performance to 1:1.

SIGMA

For more information, visit **sigmaphoto.com**

Good as Gold

POP PHOTO SUMMER OLYMPICS SPECIAL

Shooting the Gold Rush

By Peter Kolarin

This month, the greatest athletes of our day descend on London for the 30th Olympiad. Along with them come some of the world's most accomplished sports photographers, who will fly in mountains of the best and most expensive cameras and lenses, their planners stuffed with schedules and notes, and their nerves steeled for a marathon of shooting across three relentless weeks. We interviewed five of these tested pros, and their insights should help all shooters of organized sports—Olympic or not—go for the gold.

Thanks for the terrific article about still photographers covering the 2012 Olympics in London. I covered four Summer Games: Tokyo (1964), Mexico (1968), Munich (1972), and Montreal (1976) for the wire services and specific non-governmental organizations, and the story captured the excitement and massive workload photographers face in completing their assignments. However, we faced an additional challenge...we shot film. I would have welcomed the opportunity to shoot digital!

Steve Hines
Aldie, VA

YOUR REVIEW of the Nikon D3200 (August 2012) should have emphasized (beyond the small mention in the specs) a feature that I have wanted for a long time: An external microphone input jack. No other DSLR at this price offers this capability. This is a critical feature for video work with a DSLR.

I can't understand why manufacturers have ignored this feature when A) they tout the video quality they're achieving in DSLRs and B) every DSLR video book and article published tells us to use an auxiliary mic. The only path to plugging in a mic until the D3200 has been to buy a "pro-class" video camera, starting north of $1,500.

I shoot oral histories and interviews for my blog wordchipper.com. I'm forced to use the built-in mic, and it lacks the quality I could achieve with a lavalier microphone. My Nikon D3100 is a great camera, in perfect working condition, and its 14.5MP sensor is sufficient. But it's the new external mic jack that will cause me to move up to the D3200. Thanks, Nikon, for finally doing this!

Larry Gauper
Fargo, ND

EDITOR'S NOTE: *Canon's entry-level EOS Rebel T3i, released in 2011 and retailing at $799, street, sports a stereo mic jack, as does the new EOS Rebel T4i, reviewed on page 71 of this issue. In addition, some video shooters use external recorders, using the audio track from the onboard mic to sync the recorder's audio with the video with a plug-in like Singular Software's PluralEyes.*

BEING AN avid car show shooter, I was very interested in the piece written by Jeff Wignall (Traveling Photographer, September 2012). I agree that the beauty of classic auto photography is in the details. My disappointment was the timing of the article, as I read this just days before one of the largest classic car cruises in the world takes place, the "Woodward Dream Cruise." A nearly 50-mile classic-car traffic jam and party, it attracts hundreds of thousands of people from across the world. Being held in August, it didn't make the "Where To Go" list for September events.

Ed O'Donnell
Clinton, MI

DAN BRACAGLIA

POPULAR PHOTOGRAPHY

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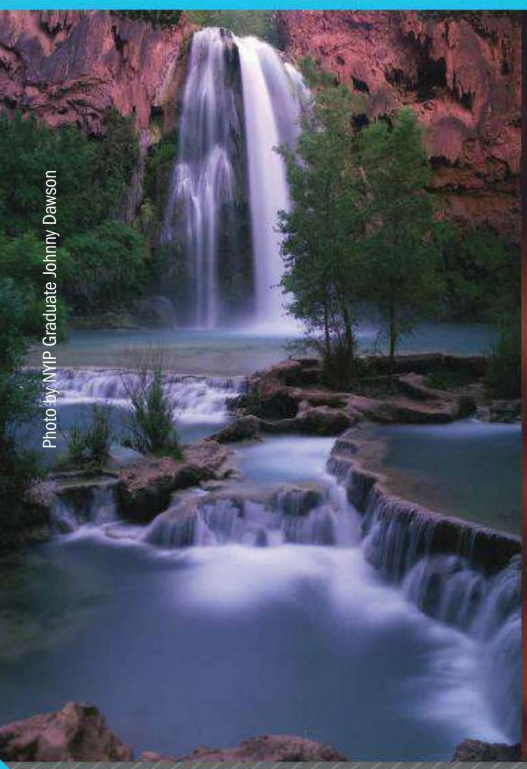
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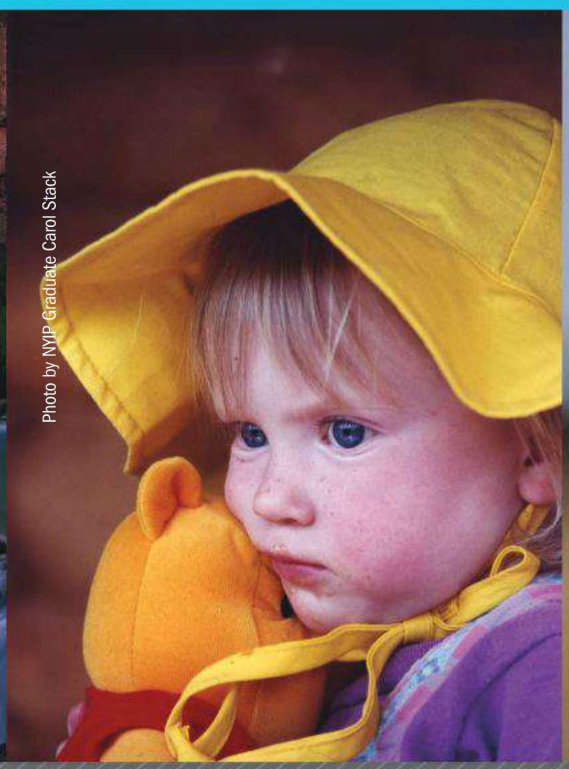
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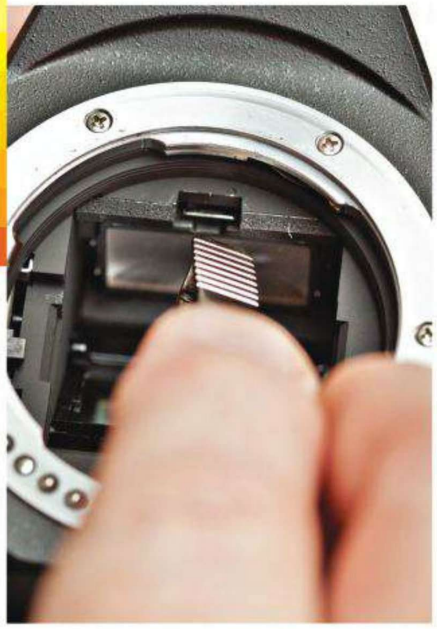
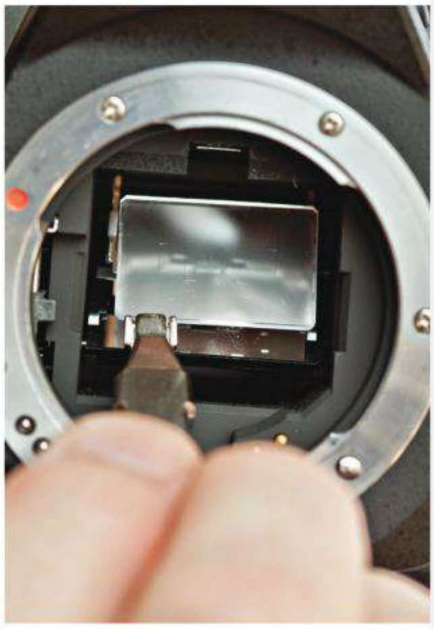
Screen Gems





In a Pentax K-30 mirror box, a latch is released with a tweezer, left, allowing the focusing screen frame to drop down, right.

DAN BRACAGLIA (2)

INTERCHANGEABLE focusing screens have ridden the pendulum over the years. Once they were considered *de rigueur* on pro-level SLRs and eventually migrated down to midlevel cameras. Then autofocus happened, and the emphasis for focusing screens turned to brightness to accommodate AF.

But now the pendulum is swinging back again. DSLR video has put new emphasis on manual focusing, and still-photo shooters have been smitten by new manual-focus, high-speed primes (see Zeiss, Rokinon).

Many current DSLRs, mid-level and up, allow you to swap out their screens. There are screens designed for the manual focusing of high-speed or long telephoto lenses. Some have split-image or microprism MF aids. There are screens with grid lines or calibration scales. Not all of these types will be available for your model of camera—the selection is often limited to two, three, or four types.

The screens fit into a frame that hinges down into the mirror box. Screens come with a dedicated tweezer tool and instructions. (Read them: That's an order!) You first make sure the camera is turned off. Then you use the tool to tug or press on a latch that releases the screen frame. You use the tweezer end of the tool to grasp a tab on the screen and remove it. The new screen goes into the frame using the tweezer, which you then use to press the frame back up into place until it locks with a click.

This procedure is tricky, particularly with the tiny screens used in APS-C and Four Thirds DSLRs. The acrylic screens scratch easily, and it's an errant tweezer that's likely to do the scratching. So we'd recommend changing screens as rarely as possible: Consider it a semi-permanent modification.

Q&A AF Motoring

Q I have decided to purchase a Nikon D3200, but perhaps with a Tamron 28–300 f/3.5–6.3 XR Di VC lens. Your review states that the D3200 lacks a mechanical AF coupling pin, so if you want autofocus, you need an AF-S Nikkor lens. Will this Tamron lens autofocus with the D3200?

Gene Platt
Arcadia, CA

A *Yes. This particular Tamron lens is new enough that the Nikon-mount versions have built-in autofocus motors. Lower-end Nikon models starting with the D40 were designed without a body-based AF motor and drive shaft, and so require lenses with their own built-in AF motors for autofocus. Nikon designates these lenses AF-S Nikkor rather than just plain AF Nikkor, but third-party lensmakers don't provide a similar designation. While most new Nikon-mount lenses at this point have the built-in AF motors, there are still lenses in the pipeline that do not. Own a D40, D40X, D60, D3000-series, or D5000-series body? You should confirm that any AF lenses you buy, especially older models, have the built-in AF motor.*

Q&A Slow All-in-Ones

Q With the versatility of all-in-one zooms like the new Nikkor 18–300mm and Tamron 18–270mm, what is the argument for having a bunch of lenses with limited zoom ratios? Every time I change a lens I'm vulnerable to dirt getting on my sensor. I understand the all-in-ones aren't as fast as f/2.8 lenses, but the image stabilization built into most of them allows you to shoot in low-light situations. And granted, the *bokeh* will be better with an f/2.8 lens, but how much quality am I giving up with an all-in-one?

Eric Schurr
Carlisle, MA

A *We're big on the convenience of all-in-ones, but our SQF data show that these lenses are optically challenged at their longest focal lengths, where they typically drop several grades in sharpness and contrast. Slower lenses mean slower AF, and image stabilization won't keep a moving subject from blurring at slow shutter speeds. All-in-one zooms typically slow down to f/6.3 at longest tele, so you'd need to use 1/40 sec to get the same exposure that you would at 1/250 sec with an f/2.8.*

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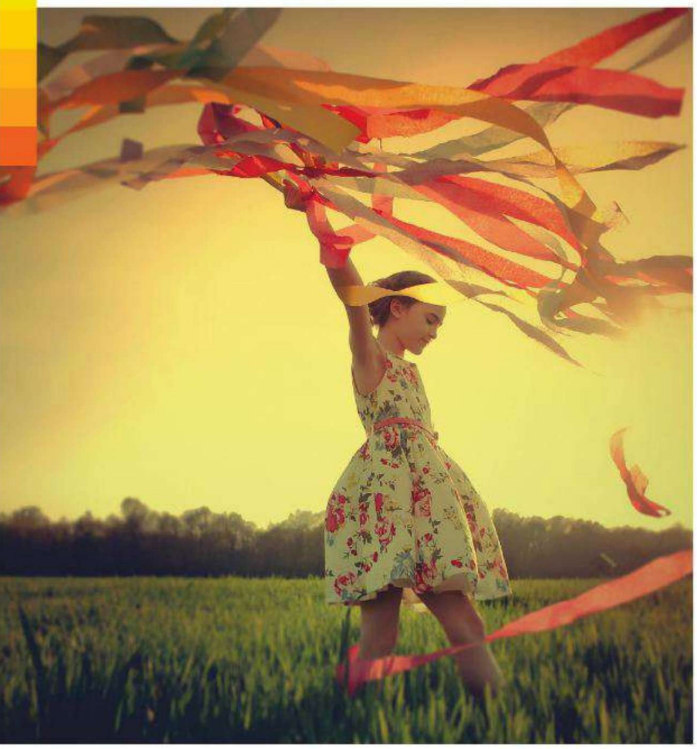

3rd Place
$100 Prize

TIFFANY ZETTLEMOYER, 34, PHOTOGRAPHER, CHESAPEAKE, VA I love photographing children—their reactions are so genuine. This shot of my daughter Madison is from a series involving the magic of childhood. I had an assistant help control the streamers, and I reflected the bright 5 p.m. sun with a reflector at camera right. I cropped the image and adjusted for sharpness and color to give the photo a vintage look. **TECH INFO: Canon EOS 5D Mark II with 24–70mm f/2.8L Canon EF lens; 1/640 sec at f/3.2, ISO 125. Edited in Adobe Photoshop CS6.**

2nd Place
$200 Prize

JOHN CORNICELLO, 55, COMMUNITY MANAGER, SEATTLE, WA I've photographed many fireworks shows, so I was confident on the exposure for the fireworks, but I wasn't sure what exposure was needed for the needle. I wanted ISO 100 and around f/11 to f/16; then the shutter speed would determine the length of the firework trails and the number of bursts in the scene. I lucked out—the needle exposure ended up being around 3 seconds at f/14, allowing for a few bursts and nice trails. **TECH INFO: Tripod-mounted Canon EOS 5D Mark II with 70–200mm f/4L Canon EF lens, fired with Canon TC-80N3 remote trigger; 3 sec at f/14, ISO 100. Contrast, clarity, and vibrance adjusted in Adobe Photoshop Lightroom 3.**

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1st Place
$300 Prize

NAREN GUNASEKERA, 31, ENVIRONMENTAL SCIENTIST, COLOMBO, SRI LANKA I scuba dive Colombo's waters regularly to document the wrecks and reefs. The thick growth of coral and the fish life make Cargo Wreck my favorite subject—pretty much a second home. I found this amorphous shoal of juvenile fusiliers and glass fish shifting as it moved up and down the wreck, the fish trying desperately to avoid being eaten. The baitball rushed towards me, and for a moment, silhouetted against the sun, my strobe lit up the fish in front for a silvery effect.

TECH INFO: Sea & Sea DX-2G with UWL-04 FIX lens (step-down ring adapter) and Sea & Sea YS-110A strobe; 1/80 sec at f/5.1, ISO 64. Crop, contrast, highlights, and clarity adjusted in Lightroom 2. Unsharp mask applied in Photoshop CS5.

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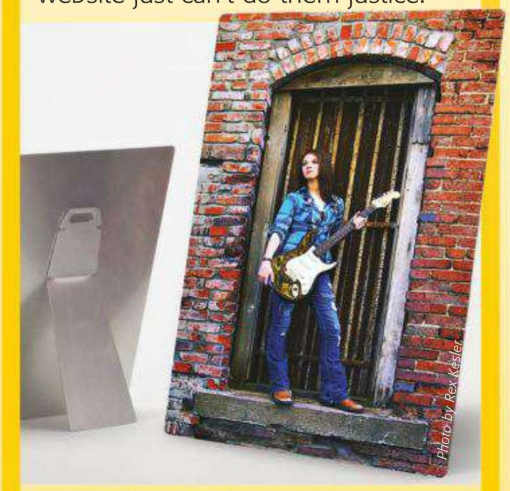

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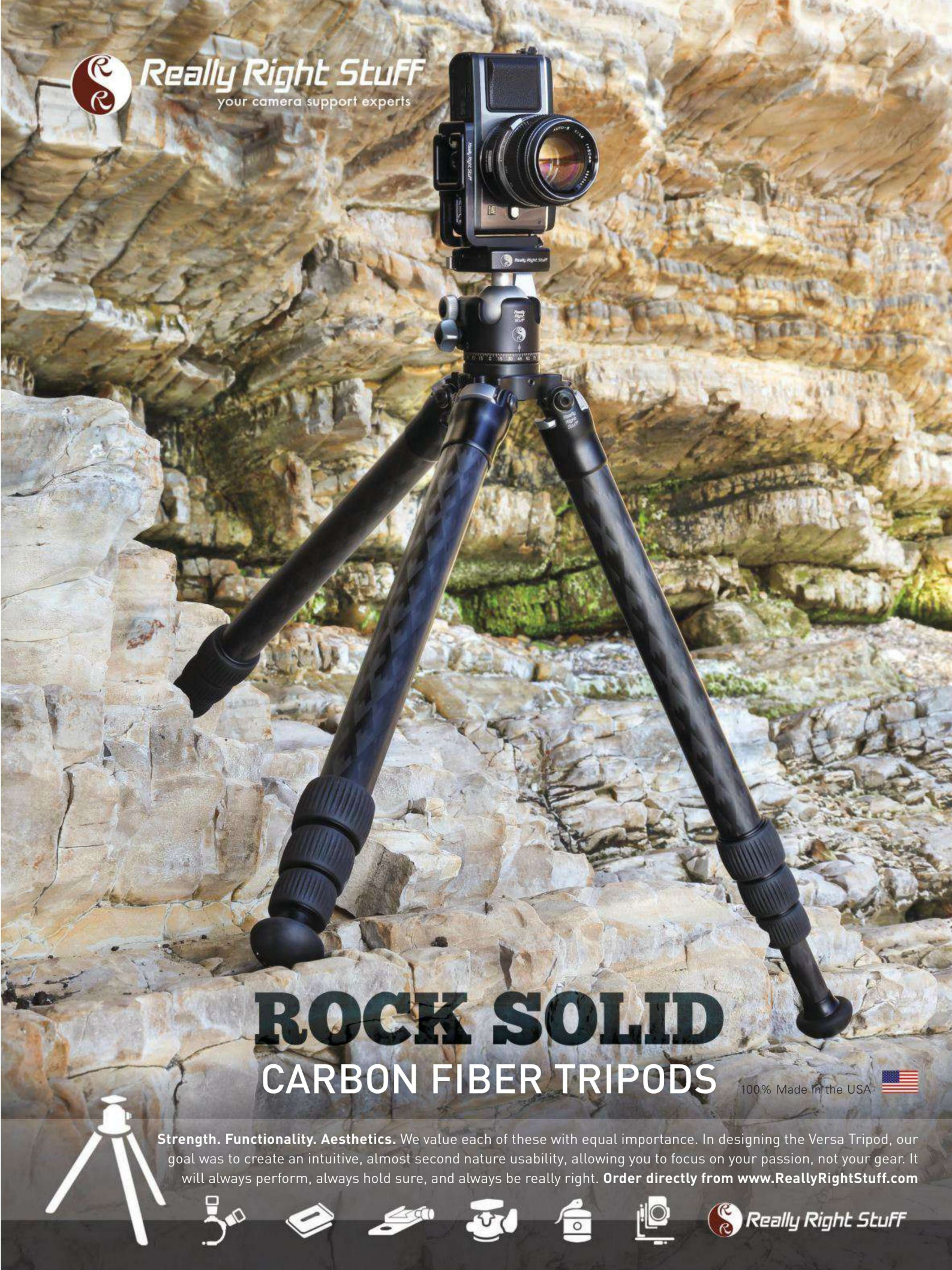
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CREATIVE THINKING

CASUAL COLLAGE

Creating a Pop Art look for a pop/rock band

PORTRAIT SHOOTS for corporate executives or politicians are generally serious affairs: strictly scheduled, stressful, and strait-laced. Shoots for boy bands? Not so much. In fact, when she shoots music acts, Billboard.com creative director and photographer Rachel Been relies on her sense of humor as much as she does her lights.

Been works hard to make things fun, especially with younger bands who haven't been in the business long enough yet to become bored with photo shoots. With The Maine, a pop/rock band from Arizona, "all they had to do was stand against the wall, and I made them laugh," the photographer says. Easy!

At the time of the shoot, *Billboard*'s studio was set up on an unoccupied floor of the magazine's office building in New York City. With walls painted in primary colors and bits of furniture and other office debris littered around the space, the makeshift studio had a chaotic, funhouse quality to it.

"I had been doing a lot of shoots incorporating the walls, one color at a time" for different artists, Been explains. But this time, "I wanted to try something multicolored, and I wanted to incorporate the odd chaos of the

Rachel Been, a creative director and shooter for *Billboard*'s website, brought a graphic-design sensibility to her photo-collage of The Maine.

RACHEL BEEN

abandoned office floor with the boys'[collective] persona, which is young, energetic and pop."

Been hit upon a pictorial concept, reminiscent of the artist David Hockney's Cubist-inspired Pop Art-inflected photocollages, that she described to the band as being "segmented and reconstructed."

As you might have guessed from the shadowless front-lighting, she used a ring-flash (the Ray Flash adapter on a Nikon Speedlight SB-800). The camera: a Nikon D70 with a 17–55mm f/2.8G Nikkor lens. Her subjects were sold on the look. "They loved seeing these super-bright body-part pictures," the photographer says.

"I explained the concept of recomposing the shot so that they would be interacting in a sense. I had them turn to the left or right as if they were looking at another bandmate, or throwing up the bird, and it was incredibly easy for them!"

Each "body segment" got about five shots in different poses, so Been wound up with about 20 images per muscian. Once she felt she had her stitching segments, she shot a group portrait just to be safe. By then, the band was just having fun so the group shot was relaxed.

"I believe that shoots should be enjoyable, otherwise boredom or stress is reflected in the image," she says. "Treat them as a friend because friends share intimate stories with each other. Your hope is that they will become that comfortable with you."

Been's postproduction was just as simple: She boosted contrast and saturation, then stitched the separate body segment shots into place. She left the images a little bright and rough, as befits a brash young band. *—Laurence Chen*

FIX IT FAST

Tone It Up

Shadow detail for eye sparkle

By using an aperture of f/1.8, Mumbai resident Nithin Narayan limited the depth of field nicely in this off-center composition. Narayan used a Canon EOS 450D (a Rebel XSi) and 50mm f/1.8 Canon EF II lens for the shot at 1/640 sec, ISO 400. See more of his photos at www.flickr.com/photos/clickstar/.

WE WERE charmed by Nithin Narayan's photo of a little girl in Manali, in the Himachal Pradesh state, India. "I came across a few children playing," he recounts. "I offered them some pieces of bubble gum from my pocket. This little girl was one of them. Initially very shy, she finally stood still while chewing on the gum. Her *dupatta*—scarf—is actually hiding her mouth while she tries to blow a bubble from the gum."

As much as we liked the picture, we thought the shadows on her face obscured too much detail. We also found the intense color and contrast too harsh for the subject. Working with the photographer's untouched original JPEG in Adobe Photoshop CS6, we first used the Highlight/Shadow sliders to bring up the shadows a bit, then Curves to brighten them still more, as well as her hair. This had the added benefit of showing more of the catchlights in the girl's eyes. We also used Curves to tone down hot highlights in the wall.

NITHIN NARAYAN

At that point we noticed that the eyes were a little soft, so we sharpened them with Smart Sharpen. Total time fixing: 15 minutes. *—Dan Richards and Debbie Grossman*

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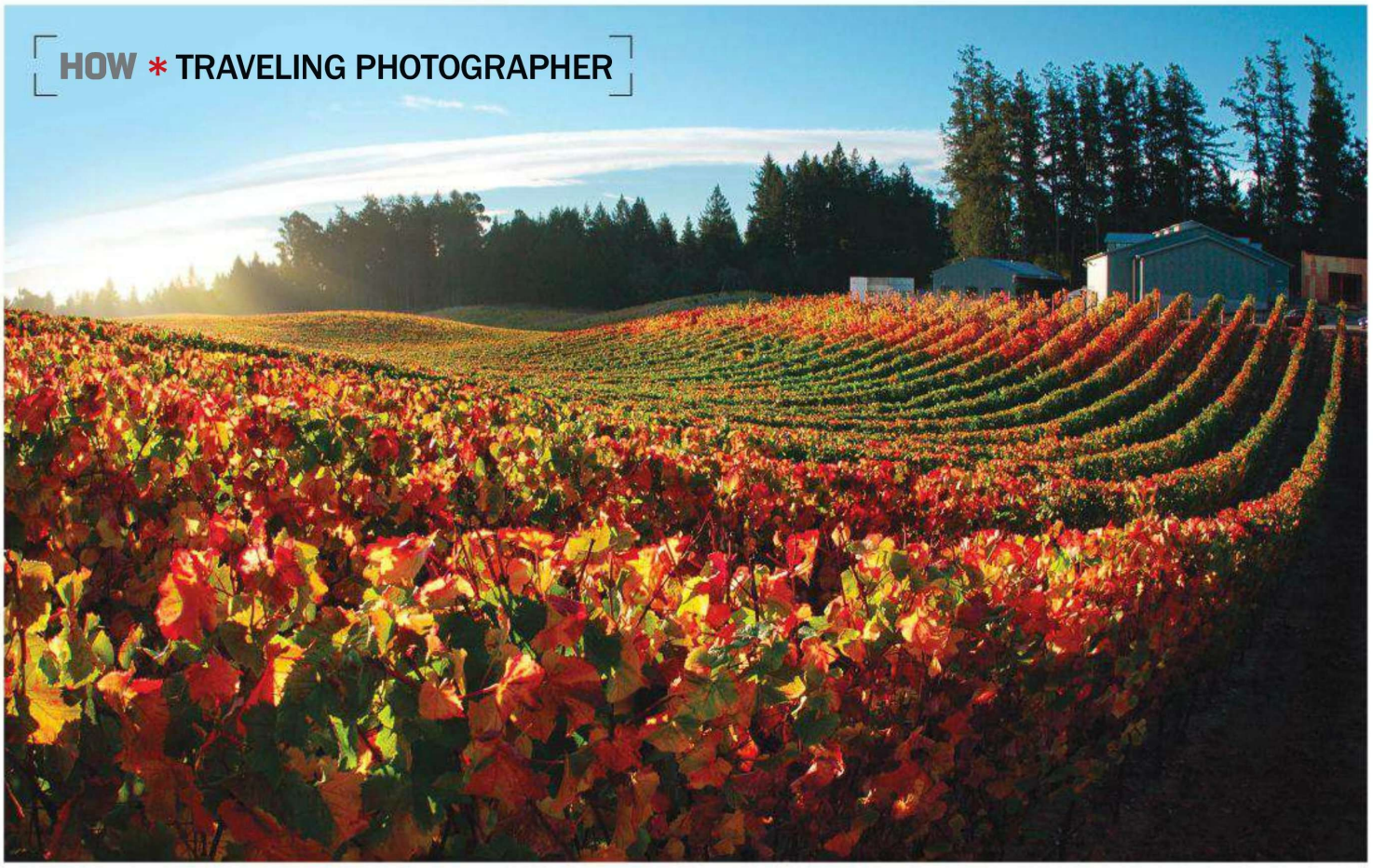

PAUL KIRCHNER

Vine Time

A photo tour of American vineyards

FOR GREAT shots of vineyards and elegant wineries, you don't need to go to France or Italy; the U.S. is the fourth-largest wine producer in the world. And, while California accounts for 90 percent of it, there are more than 7,000 wineries scattered throughout all 50 states.

San Francisco-based food and still-life shooter Paul Kirchner spends a lot of time in vineyards for winery clients. "When looking for shots, I think about where the sun will be when and what the light will do to the landscape," he says. "I would much rather have a thin layer of fog with the morning sun behind it on a flat, boring piece of vineyard than harsh contour-flattening light on a magnificent rolling landscape."

He adds: "I arrive an hour before sunrise and set up the cameras, shoot for about an hour or so after sunrise, and then wait for the afternoon light." Most of his images are "thoroughly massaged" for color balance.

A few of his must-get shots:

- **Patterns and vine rows.** A ladder is a great help.
- **Harvest**—usually done very early in the morning.
- **Close-ups** of hanging grapes.
- **Barrel rooms.** Most offer "art directed" views of antique casks.

Your access to vineyards may be restricted, Kirchner says. "Wineries don't want you on their land, outside of the immediate area around the tasting room. Don't hop fences."

—Jeff Wignall

WHERE TO GO

Wine Regions of the U.S.

Areas rich in wineries commonly fall into federally recognized regions called American Viticultural Areas (AVAs). Within each, you may find informal sub-regions or tourism-minded "wine trails." You'll find a list of all approved AVAs at iwineinstitute.com/avabystate.asp. Here are some popular regions for travelers.

- **FINGER LAKES REGION** Upstate New York More than 100 wineries scattered around Seneca Lake, Cayuga Lake, Keuka Lake and Canadaigua Lake—the four main Fingers.
- **MONTICELLO AVA** Piedmont region of Virginia Skirting the eastern side of the Blue Ridge Mountains, the region covers 1,250 square miles in four different counties. Thomas Jefferson was an early grower and backer.
- **COLUMBIA VALLEY** Oregon and Washington At about the same latitude as France's Bordeaux and Burgundy, the region covering 11 million acres (more than 43,000 planted in vineyards) and includes more than 40 wineries.
- **NAPA VALLEY** California The grand dame of American wine regions. More than 45,000 acres planted in vineyards.
- **OHIO RIVER VALLEY AVA** Indiana, Kentucky, Ohio, and West Virginia The second-largest wine appellation in the country, more than 16 million acres spread over four states along the banks of the Ohio River. Established in 1823.
- **TEXAS HILL COUNTRY AVA** Texas More than 30 wineries spread across 9 million acres (15,000 square miles) west of Austin and north of San Antonio that attracts 5 million visitors per year.

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Glass Act

Banish glare with backlighting

HOW DID photographer John Kuczala render this lab glassware with such crystalline clarity? The trick, says the New York City-based tabletop specialist, is avoiding frontlight. Backlighting against white or sidelighting against black does the job. Direct frontlight, regardless of the background, ruins your shots.

This is because aiming light directly at glass objects throws bright highlights across their forward surfaces, creating distracting hotspots that define surface but not shape. These reflections also detract from the most distinctive visual trait of glass—its transparency.

While backlighting the beakers shown here helped Kuczala depict their clarity, the technique also presented challenges by reducing contrast and revealing imperfections in the glass.

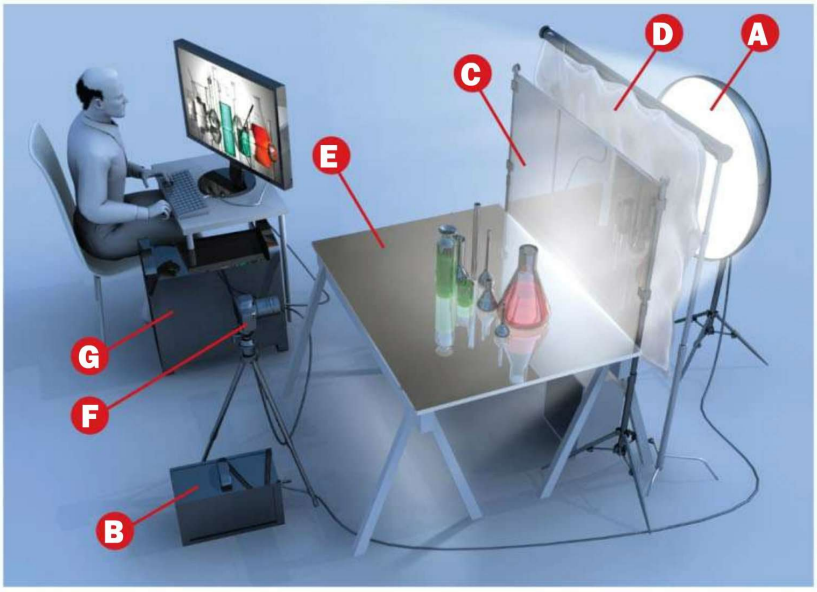
Kuczala set the smallest aperture possible, f/20, to assure sharp edges, with no softening from diffraction. His shutter speed was 1/160 sec at ISO 100.

Contrast was lowered because Kuczala essentially aimed the main light directly into his lens. This eliminated some object edges and desaturated the liquids' colors. To recover contrast, he used a sheet of glossy black acrylic as his table top and shot in darkness, effectively surrounding his subject with black on three sides.

JOHN KUCZALA/GETTY IMAGES

SECRETS TO LIGHTING GLASS

SIMPLE ■■■■■■■■■■ COMPLEX



KRIS HOLLAND/MAFIC STUDIOS (ILLUSTRATION)

To light laboratory glassware for a client's website, John Kuczala used a single Norman IL2400 lamphead in a Norman Type 1 beauty dish (A) and powered the strobe using a Norman 24/2400 pack (B). He chose a beauty dish because its round shape would create a circular halo behind his subject. But creating a "perfect" halo required precision placement of the backlight and relative positioning of two diffusion panels: a 4x4-foot sheet of white translucent acrylic (C) and 60-inch width of Rosco Tough Lux (D). To heighten overall contrast of the scene, Kuczala used a sheet of glossy black acrylic as his tabletop (E). When lit from a low angle, this surface reflected light like a mirror, essentially reading as white in the image. Its blackness, however, bounced up onto the beakers to outline their edges and define their shapes. He shot with a Canon EOS 5D Mark II, a 50mm f/2.5 Macro Canon EF lens (F), and Phase One's Capture One 4.7 software for shooting with a tethered computer (G).

THE GEAR

Norman D24 Power Pack **($2,130, street)**

Norman IL2400 strobe head **($560, street)**

Norman Type 1 soft reflector beauty dish **($167, street)**

The reflected and refracted black resulted in higher scene contrast, and helped produce the outlined edges in the glassware and retain the clean color saturation in the liquids.

Backlighting can also bring out every imperfection in glass, including dust, fingerprints, scratches, dings, and bubbles. The closer you place your camera to a glass subject, the more any imperfections become magnified. Compositions with multiple objects, such as Kuczala's still life here, let you move the camera back so that individual dust motes or smudges are less visible.

Visit kuczala.com for a crash course in creating powerful product shots and photo illustrations. His work combines wit and simplicity to stunning effect.

To avoid fingerprinting, Kuczala washes his hands before touching glass—gloves don't work because cotton produces lint and nylon a powdery dust—and he handles the glassware only by its edges. Before placing a piece, he wipes it down with an antistatic cloth, and, once he has placed it, blows off remaining dust with compressed air.

Ready to try lighting glass? Kuczala suggests starting with a cocktail. "Pour a glass of wine or liquor and really look at it," he says. "Hold it up in different types of light and against different backdrops until you notice something special. Then, try to capture it." *—Peter Kolonia*

See the Steps in Action
Download the PopPhoto Interactive app from Apple's app store and point your iOS device at the page to see a video version of this tutorial.

RAW + Masks

Use Smart Objects to combine the power of Photoshop with the versatility of RAW

SMART OBJECTS were introduced in Adobe Photoshop CS4 as a way to bring more nondestructive editing into the pixel-based application.

Smart Objects live on special Smart Object layers and allow you to make certain kinds of edits to your layers without permanently changing the layers' original pixels. Smart Objects let you open a RAW file in Photoshop and do things like copy, paste, transform, and resize as if it's a normal pixel layer. But you can still go back and reconvert if necessary, using all of the tools in Adobe Camera Raw, without losing your changes.

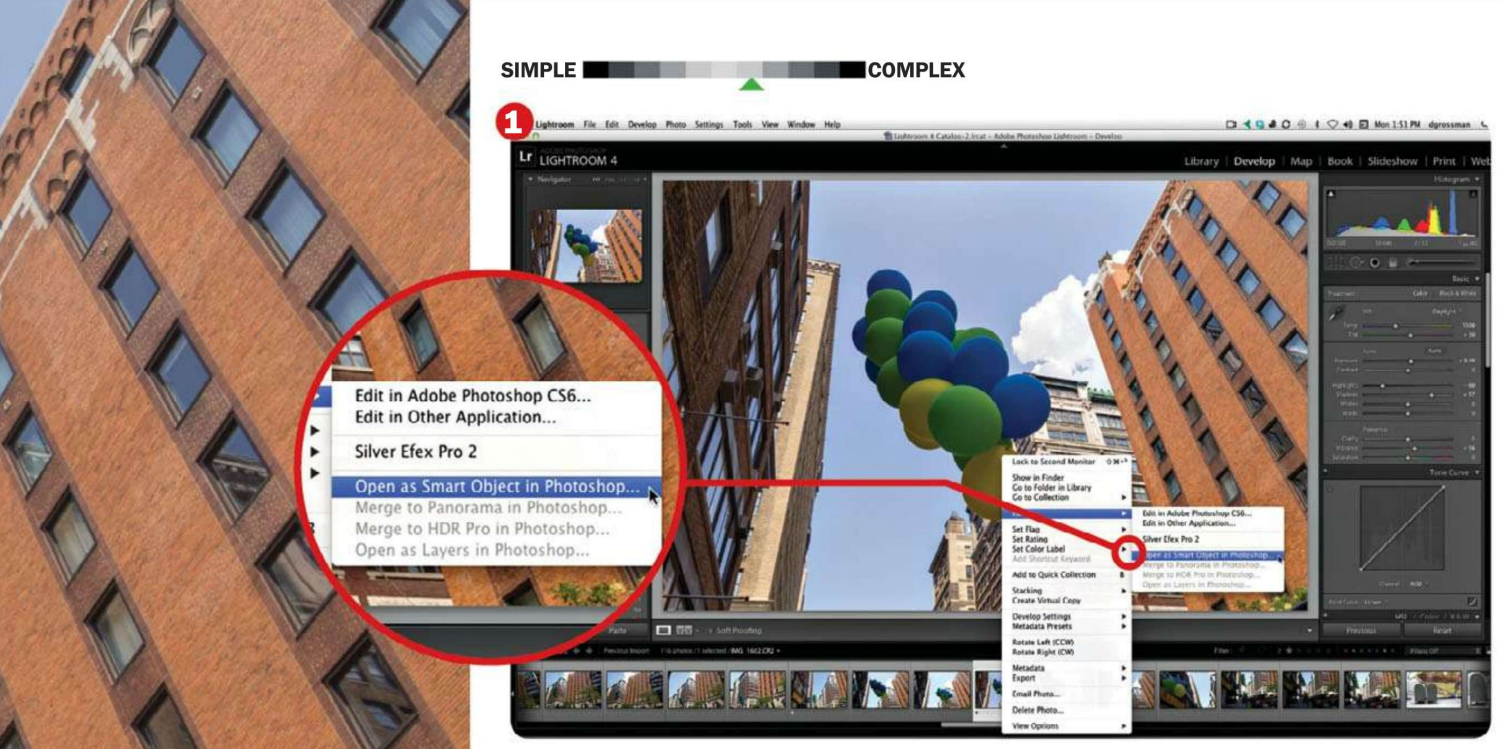
The range of tones in this image was too great for RAW conversion alone to handle.

DEBBIE GROSSMAN

When a Layer is a Smart Object, you have access only to some of Photoshop's tools and filters. When you use a filter on a Smart Object, it becomes an editable Smart Filter. Note that you can also convert normal pixel layers to Smart Objects, allowing you to shrink and enlarge them without loss of image quality.

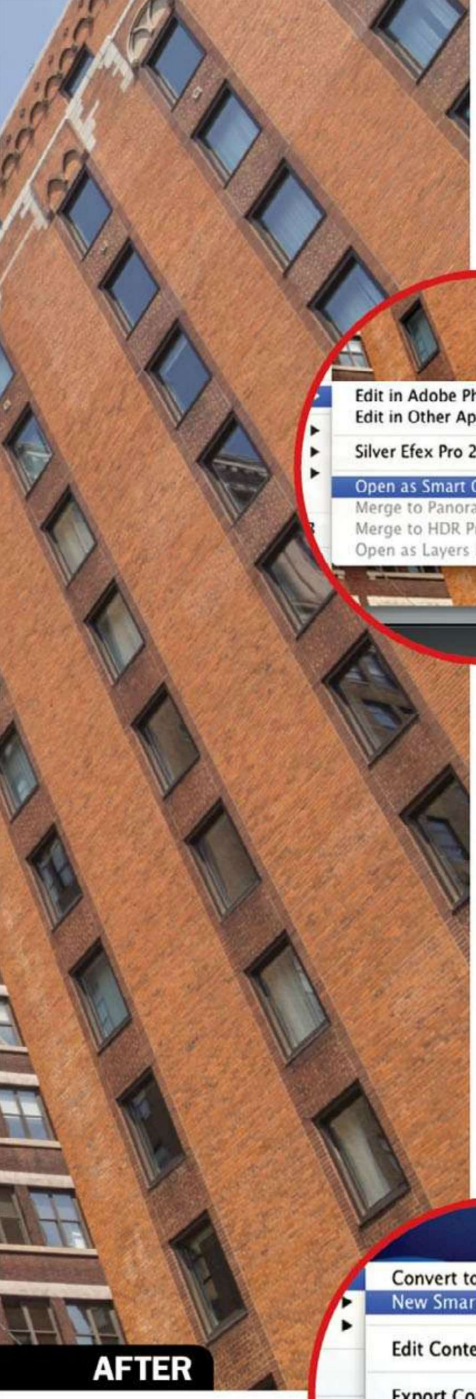
One of our favorite ways to use Smart Objects is with RAW files. When you open a RAW file as a Smart Object in Photoshop,

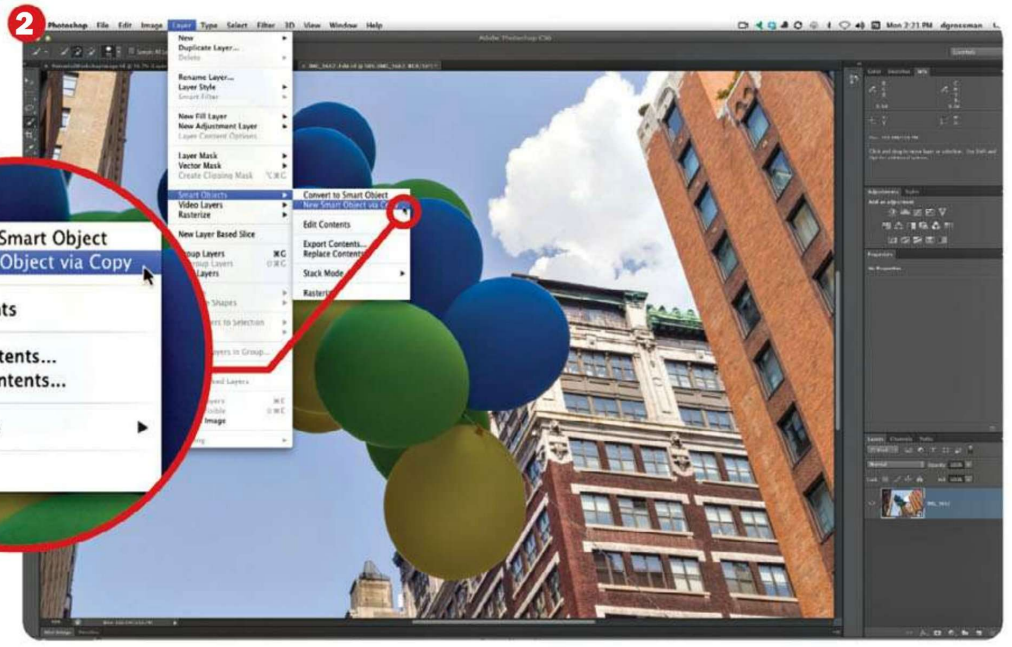
SIMPLE COMPLEX


1
LIGHTROOM 4
Edit in Adobe Photoshop CS6...
Edit in Other Application...
Silver Efex Pro 2
Open as Smart Object in Photoshop...
Merge to Panorama in Photoshop...
Merge to HDR Pro in Photoshop...
Open as Layers in Photoshop...

Step 1

First, Process your RAW file for the most prevalent tones in your image—in this case the midtones. **Working in Lightroom, right click on your image and choose Edit In > Open as a Smart Object in Photoshop.** If you're converting in Adobe Camera Raw, hold down the Shift key and click on the Open Image button to open as a Smart Object. Once in Photoshop, check out the layer thumbnail for your RAW file—you'll see a small icon in the bottom-right corner that indicates that the file is a Smart Object.





you can always reopen it in ACR to reprocess according to your needs. And although these days the targeted adjustment tools in Lightroom 4 and ACR are pretty good, sometimes it just works better to use Photoshop's powerful selection tools to edit specific areas.

Here's how to combine Smart Objects and a RAW file to create an image with the widest possible range of tones.

—Debbie Grossman

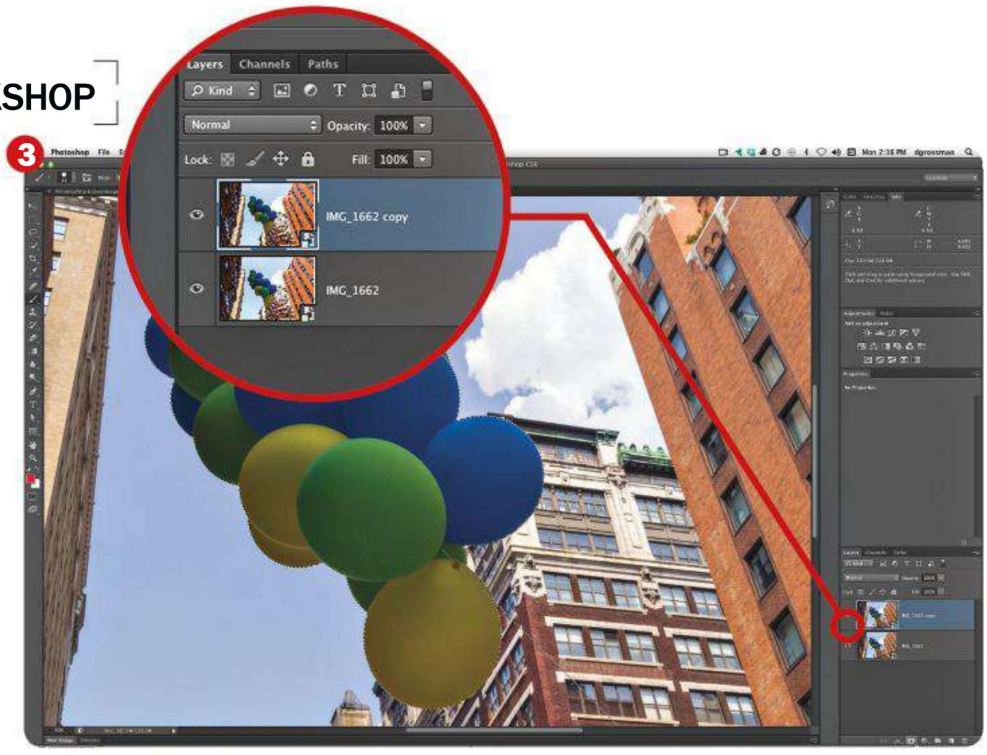
Make a copy of your Smart Object using the Layer menu.

Step 2

In this image, the balloons are backlit and underexposed, so target them first. Begin by making a copy of the first layer. **Go to Layer > Smart Objects > New Smart Object via Copy.** Making a copy using this method means that each of your RAW Smart Object layers can be converted differently. If you made a copy of a Smart Object layer the usual way, each copy would link back to a single RAW conversion.

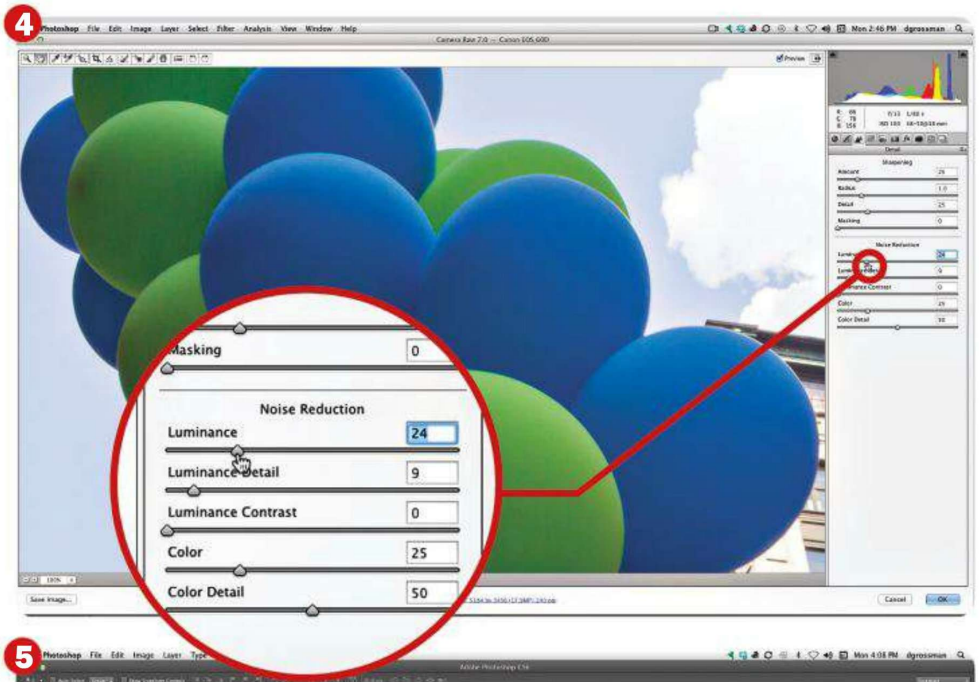
Step 3

Now make a selection of the balloons. Since they're pretty clearly defined, **type W to grab the Quick Selection tool and make a rough selection; hit Q to switch to Quick Mask mode to use the Brush tool to perfect it, then smooth it with Refine Edge.** (Or use your favorite selection method.) Add a mask by clicking the Mask button in the bottom of the Layers panel.



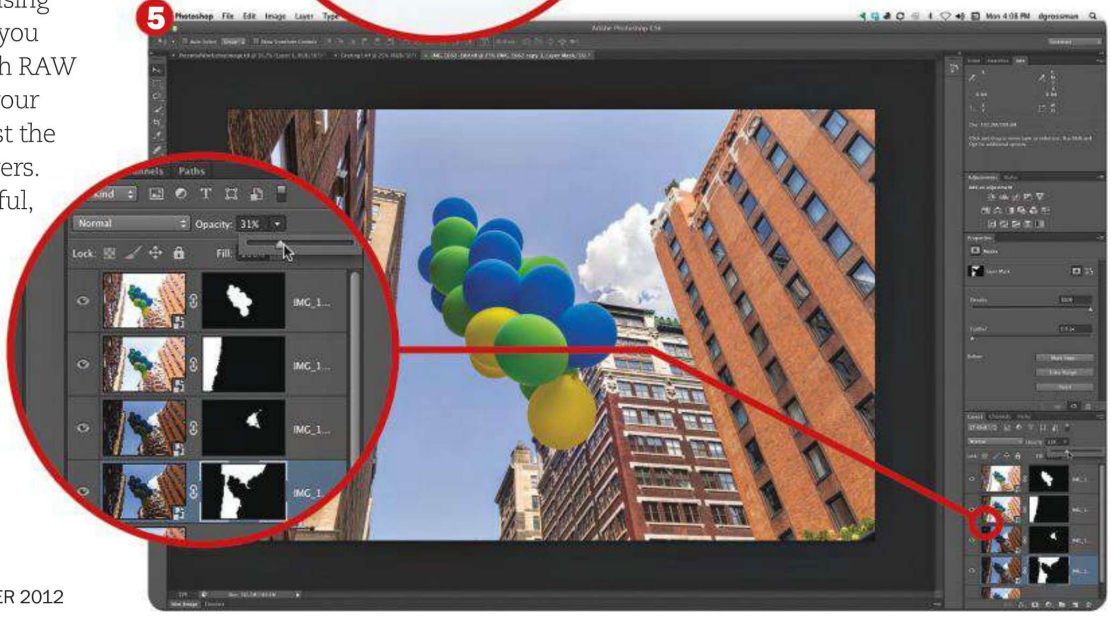
Step 4

With everything in your image but the balloons masked out, it's time to reconvert your RAW file. **Double click on the layer thumbnail with your new mask, and ACR will open up.** Now reprocess your image with just the balloons in mind—don't pay attention to the rest. Upping the exposure on the balloons brings out a lot of noise. Since you're in ACR, you can tone down the noise using ACR's noise-reduction tools, which work better than those in Photoshop. Click OK to go back to Photoshop.



Final Step

Repeat Steps 2–4 for every area of the image that you want to edit selectively. Fix the dark buildings on the left, darken the sky, and add definition to the clouds using more RAW Smart Objects. If you need to, go back and edit each RAW conversion to balance all of your picture's elements, and adjust the opacity of your individual layers. This technique is very powerful, but you may want to save it for your most important images, not only because it takes patience, but because it takes lots of processing power; depending on the speed of your computer, you may have to wait a bit for the machine to catch up with your work.



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Puff Stuff

Looking for a visual hook? Try cool props.

ALEXIS MIRE

While Mire used only natural light here, she has backlit her "clouds" with a paper lantern covered in Poly-Fil.

IN THESE TIMES of sophisticated digital retouching, making images with special effects that are created with old-fashioned, low-tech contrivances offers its own kind of of charm. The images come off as sweetly disingenuous, wickedly ironic, or a delectable blend of both. This low-tech/no-tech approach is championed by Florida self-portraitist Alexis Mire, whose special visual effects come without the help of software. (See the undisguised threads holding up her "cloud" in this photo?)

"I had always been inspired by claymation, and specifically the way cotton was used as smoke, explosions, and clouds," Mire explains. "So when a friend gave me a bag of Poly-Fil synthetic cotton, I started using it as a prop."

The result is her "Cotton Series," a project she showcases on her website, alexismire.com. "My main goal was to create optical illusions using found materials. Poly-Fil was perfect," she says. "It's so versatile and easily available. I could form it

Mire shot with a Canon EOS Rebel XSi (A) and 50mm f/1.8 II EF lens (B), supporting the camera with a Sunpak Pro423 PX tripod (C), and using her camera's self-timer to make the exposure. She set the camera to 1/2000 sec at f/1.8, ISO 400.

Step 1

Create your cloud.

Mire determined the size and shape required for her composition, and then molded the Poly-Fil accordingly. When it was sufficiently cloudlike, she bound it together with thread to keep it from falling apart. Make sure you have a clean tablecloth or sheet where you can park the cloud as you work.

Step 2

Find the right background.

"You want a whimsical location, like a scene from a fairy tale," says Mire. "I looked for one with darker tones that would set off and not compete with the cloud. The little patch of woods I used had a threatening web of tangled branches and access to limbs that could support the cloud."

Step 3

Get the right light and exposure.

Mire wanted the lighting to be bright, yet indirect and diffused; conditions should not be windy, for the obvious reasons. Her exposure was important, too. To capture detail in the cotton, she was careful not to overexpose, and, in order to freeze the cloud and preserve its texture, she set the fastest shutter speed possible. Even on a windless day, the hanging cloud would sway.

Final Step

Experiment with composition and effect. "I played around with different perspectives before I made my final image," says Mire. "I wanted mystery, and played with the Poly-Fil until I got it. When I pulled part of the cloud toward my mouth and it crossed my cheek, I knew I was close. I glanced over at the camera, as if to confront the viewers with this strange sight, and the move created exactly the illusion I was going for."

into any shape, and it was actually fun to work with."

If you'd like to make your own atmospheric magic with this fluffy stuff, Mire advises:

- **Don't light your cotton substitute with direct flash. It can blow out the highlights, and you lose the fluff factor.**
- **The larger your "cloud," the more difficult Poly-Fil becomes to work with. Mire made several small, nebulous shapes and wrapped them together with nearly invisible, white thread.**
- **Avoid dropping the stuff—it picks up dirt and stray material very easily.**
- **Be prepared for it to become part of your life. "I still find wisps of it in my hair, clothing, car, even drifting across my front yard like tumble weeds," Mire warns.**

—Peter Kolonia

THE BIGGER PICTURE

Photos by Rodney Lough Jr.
Interview by Dan Richards

He hikes mile after mile—carrying heavy 8x10 view camera gear, as well as camping equipment—to get the photo. He's becoming a legend for his huge prints that are measured in feet, not inches. Meet Rodney Lough Jr., a force of nature whose new book of photographic art, *Stand Here*, comes out this fall.

"ELEMENTAL," YELLOWSTONE NATIONAL PARK, WY
Lough made several vertical exposures, rotating the 80mm Schneider lens (model not recorded) around its nodal point "with generous overlap" for later digital stitching into a panorama. Exposures in an Alpa 12 Max field camera with Phase One P65+ digital back were 1/8 sec at f/32.8, ISO 50.

"THE TERRITORY BEYOND," YELLOWSTONE NATIONAL PARK, WY
Using the same technique and equipment as in the panorama above, Lough made this exposure at 1/4 sec at f/32.8, ISO 50.

"VORTEX," SOMOTO CANYON NATIONAL MONUMENT, NICARAGUA
An Arca-Swiss RL3d camera with a 70mm f/5.6 Rodenstock HR Digaron-W lens and Phase One IQ180 digital back were used for the shot at 1/3 sec at f/16.5, ISO 35.

What would you say was the unifying theme behind *Stand Here*?

Basically, I want to connect people with nature—by bringing it home, through my imagery, to those who might not otherwise have a chance to see it firsthand, and who can share in the joy of the experience.

Also, I would very much love to get people off the couch. You could run out of food and die, you could get attacked by a bear and die, you could fall off a cliff and die, or, you could stay home, fall off the couch, and die. Choose. When I sign something it's usually with "See Ya on the Trail!"—my way of saying, should we meet again, I hope it's out there.

Why the title, *Stand Here*?

I am in the process of building a mobile application and associated social media website so I can share with the world the locations of the images in my collection, many of which have remained a secret. Over the years I've watched, in horror, as places I have shared with the world become trampled to a point where they could hardly be recognized. What I've learned is that if you want to protect a place, a special place, then you shouldn't try to keep it a secret—you protect a place by sharing that place with other like-minded people who want to keep that special place sacred, pristine.

But doesn't that pose the danger that more people will show up and trample these places?

Consider this: A couple of years ago I did an afternoon hike out to

"AT PELE'S PLEASURE" BIG ISLAND, HI
Lough used an Arca-Swiss F-line 8x10 view camera with 150mm f/5.6 Schneider Super-Symmar XL lens to make the image on Fujichrome Astia 100F Professional film. Exposure: 4 minutes at f/8.

The Wave, in the Paria Canyon/Vermillion Cliffs Wilderness, with a workshop group. On our arrival to the entrance of The Wave, a single person was standing there; he looked completely lost. I told the group "Watch, he'll follow us." Sure enough, he followed us.

However, when he came back into our view, he was right on top of The Wave. He began to walk on top of those thin wafers of rock—those wafers are fragile—and climb up the rock wall of The Wave itself. I had a cow, and yelled at him as loud as I could to get down and to move away and off of the wafer rock fins. I asked him where he was from; "Germany," was the reply. I asked him if he would appreciate me coming over to his country and walking all over one of their national treasures. He apologized and moved away.

That's what I'm hoping to avoid, by having activists ready, willing, and able to speak up to keep these locations pristine. If this fellow knew ahead of time how special this place really is—how fragile those rock fins are, and how we consider that location a true national treasure—I doubt he would have acted with such ignorant disregard.

"SUNRISE AT SUNSET," BRYCE CANYON NATIONAL PARK, UT
Arca-Swiss F-line 8x10 camera with 180mm f/5.6 Rodenstock APO-Sironar lens, Phase One IQ180 digital back were used. Shot at 1/15 sec at f/11.6, ISO 35.

We heard about the problems you were having getting 8x10 film from Fujifilm. Is there any hope left there?

Hope is a wonderful thing and I am all about hope. Fujifilm hasn't stopped making 8x10 film all together that I know of, but it has stopped making the best outdoor landscape film

"TOWARD THE LIGHT," GRAND TETON NATIONAL PARK, WY **Shooting an Arca-Swiss F-line 8x10 view camera with 150mm f/5.6 Schneider Super-Symmar XL lens, Lough made the exposure of 4 sec at f/32.4 on Fujichrome Astia 100F Professional film.**

they ever produced, Astia 100F, in 8x10 sheets. Currently I have about 300 sheets of this film in the freezer and I'm treating it like gold, bringing it out for very special circumstances—or when I think such circumstances might occur.

What about 4x5 film? Not up to snuff for you?

For years I shot with 4x5, and still have my Arca-Swiss in a fanny pack at the ready. The chronology went something like this: At 12 I was given an old beat-up Olympus OM-1, was shown how to load my own black-and-white film, and told, "Go have fun!" And so that's what I did for years. Then I saw a photograph from a medium-format camera. I was blown away by the clarity, so I sold all my 35mm equipment for a Mamiya 645 Pro. After one year with that camera I saw a photograph from a 4x5 camera. Again, I was blown away by the clarity and sold all my medium format-equipment for a Toyo A-II 4x5 field camera. Then the unthinkable happened—yep, I saw a photograph from an 8x10 camera, and was blown away yet again by the clarity.

This time, though, I kept my 4x5 equipment and purchased an Arca-Swiss 8x10 system. I figured, how hard could it be, really? It's just a larger version of a 4x5. Ha! The transition was extremely difficult. Can I get a hallelujah, brother?

How are the Phase One backs working out for you?

In my world, size matters. I'm not what you would call a publication photographer. My process is designed to go large with extreme clarity, not specifically to be printed in a publication, brochure, or calendar. A couple years back I was asked to test out a Phase One P65+ as an alternative to my 8x10; even then the rumor of Fujifilm discontinuing my favorite film wafted through the air like a pit toilet in the woods. So, I had to start looking around for an alternative. And while that P65+ system, on a technical camera with extremely precise lenses, was good, it wasn't good enough for my purposes.

Then Phase One came out with the IQ180. After numerous issues, and another huge learning curve, the bottom line is, single shot compared to single shot, 8x10 film is still better. However, multi-stitched IQ180 shots do compare with film. While this works for most shots, it does not work for all shots—like a wave crashing on shore as an example.

CONTINUES ON PAGE 104

Hoodman builds RAW STEEL ruggedness and "Pin Guard$_{tm}$" into a new SuperSpeed USB 3.0 UDMA Card Reader

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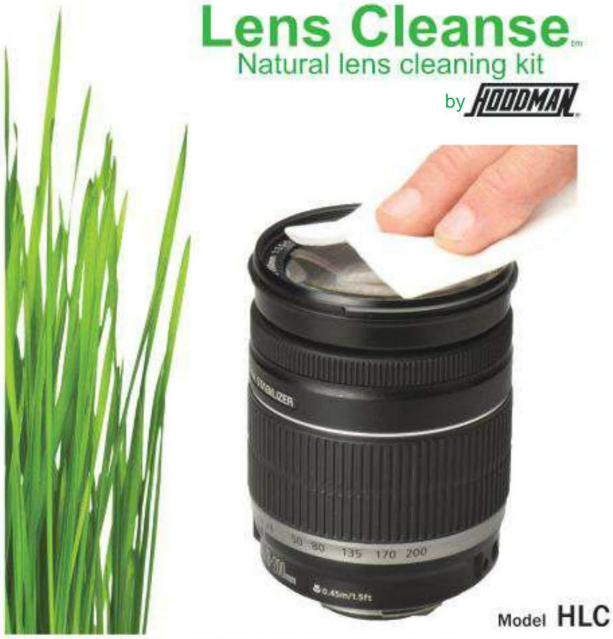

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The Dark Side

Maybe it's human nature, but photographers often fear darkness. For many of us, it's associated with photographic failure: obscured subjects, blur from movement and inaccurate focus, and the inability to see while shooting. Overcoming that fear and conquering darkness has helped the four photographers featured here to create dark images that are boldly streaked with brilliance. Here are their secrets.

By Peter Kolonia

JORGE MORENO JR.

FEMME FATALE Jorge Moreno, Jr. created a mysterious, shadowed portrait in a garage studio by reining in his lighting to minimize spill. He housed a Nikon SB-900 Speedlight (used at minimum power) in a 28-inch Westcott Apollo soft box, and shot with a Nikon D300 at 1/200 sec at f/5.6, ISO 125.

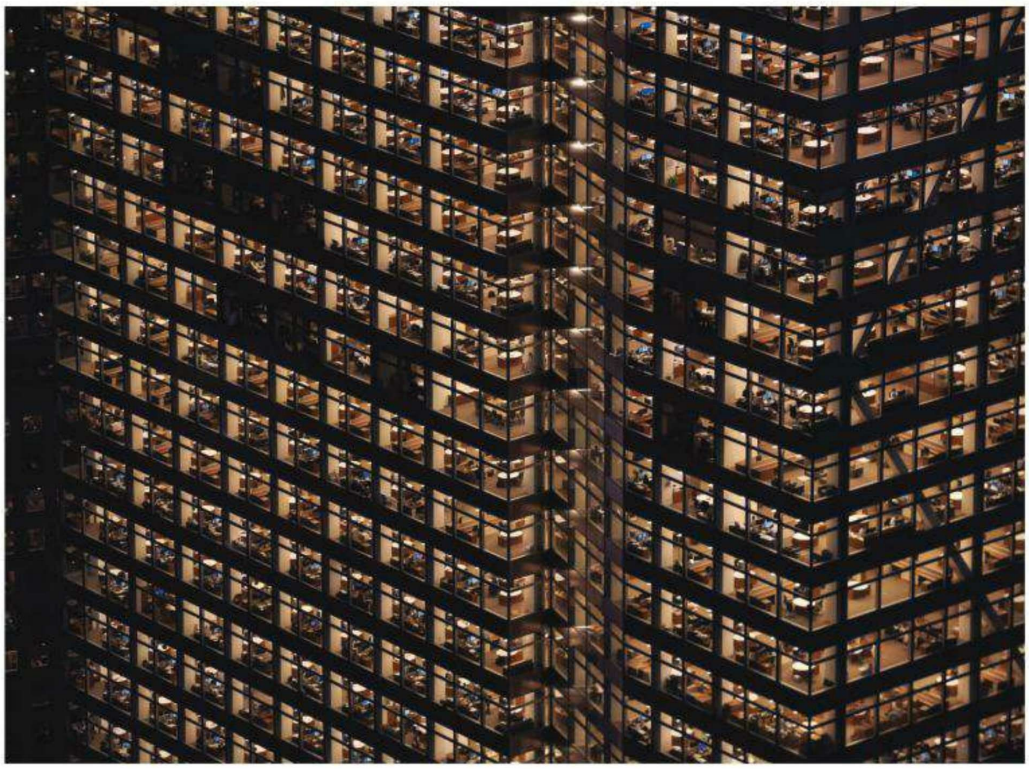
"**SHADOWS** communicate a sense of place just as powerfully as any brightly lit location can," says Cameron Davidson (camerondavidson.com), a northern Virginia-based pro who leaned out of a helicopter to shoot the office building on the next page. "I like shooting in dusky light, along the edges of darkness."

By suggesting depth, he goes on, darkness adds dimension to a scene or shaping to a face or figure. The color black in the frame also directs a viewer's attention to what's important. Even more advantageous? Its ability to conceal what is not.

"To hold blacks in the studio, you have to choose light modifiers that won't spray light around," says Jorge Moreno Jr. (jmorenophoto.com), the photographer who produced the dramatic portrait here. For this type of low-key look, he uses one of two lighting setups: either a 60-inch umbrella or as small a soft box as possible. If used correctly, both can produce minimal spill that could turn black shadows gray. With the umbrella, he achieves this by not expanding it to its full 60-inches, but by opening it just slightly to focus the strobe light solely on his model.

"Once I've determined my lighting setup, the next step is to suppress the impact of any ambient light," says Moreno. This means using his camera's fastest flash sync speed and the smallest aperture possible for correct exposure, usually 1/250 sec and f/7.0.

"To minimize spill, I start at my strobe's lowest power setting and work my way up to the optimum exposure," he says. "If I can't eliminate ambient light completely, I dial up the strobe power so I can use an aperture small enough to prevent ambient light from reaching the sensor. I also keep my subject [and lights] far from the background, in order to hold a strong black back there."



Low-Light Locations

For New Yorker Michael Shane (www.michaelbshane.com), who photographed the space shuttle Enterprise (opposite) for online publication The Verge, success comes from choosing his subjects and camera angles wisely. He avoids scenes that require deep depths of field; working at minimum aperture for front-to-back sharpness can be difficult in low light, especially when shooting handheld.

TOOLS AND TECH

Recent aids for better results in low light.

- **EASIER HDR COMPOSITING—For high-contrast nighttime cityscapes with bright highlights and dim shadows, HDR capture and compositing software can help. Try plug-ins like Photomatix or Nik HDR Efex Pro.**
- **BETTER NOISE REDUCTION—For taming noise in high-ISO images, try Nik Dfine 2.0, PictureCode's Noise Ninja, and Imagenomic's Noiseware.**
- **SONY'S HANDHELD TWILIGHT MODE—Included in more recent Sony cameras, this tool was specifically designed for low light, combining noise reduction and HDR.**

As he circled the space shuttle in the gloomy exhibition space at the Intrepid Sea, Air and Space Museum, he settled on the angle you see here. "I was cognizant of the fact that the shuttle's most interesting part from this angle, the landing gear, was [on a single plane] close to my camera," he recalls. "That meant I was able to shoot at my lens' fastest aperture, f/2.8, and get a sharp subject." Moral? Think twice before attempting subjects that require shooting at (or near) f/22.

Gear in the Shadows

"When you're shooting in low light, it's also important to know how your gear will perform," says Shane.

Because working in the dark is inherently difficult—you can't see well, after all—it's important to be completely familiar with your equipment and its control layout. Also know its capabilities. For example, pretest to determine the highest ISO that will produce satisfactory resolution and noise levels. "For this space shuttle shot, I knew from long-time experience with Canon's EOS 5D Mark II how far I was willing to push my ISO in order to get a file that wasn't too noisy," he says.

NIGHT HAWK
Shooting from a helicopter, Cameron Davidson scored this dusky New York scene using a Nikon D3s. His lens was the 70–200mm f/2.8 VR II, which he set to f/3.5, exposing for 1/500 sec at a noise-free ISO 6400. Taken handheld in a vibrating TwinStar copter, the image is sharp because Cameron mounted the camera on a $4,000 gyro stabilizer.

BEST CAMERAS IN THE DARK

In Pop Photo tests, these cameras produced the least noise at high ISOs.

- **BEST: Canon EOS 5D Mark III**
- **ALMOST THERE: Canon G1X and EOS Rebel 4Ti, Nikon D4, Sony NEX-7**
- **RUNNERS UP: Canon 60D, EOS Rebel 3Ti; Nikon D800, V1; Olympus OM-D, Olympus Pen E-PL3 and E-P3; Pentax K-r; and Sony Alpha NEX-C3**

Similarly, Davidson cautions, "It's important to pretest lenses for infinity focus. Some systems have focus problems— either back or forward focus—that can lead to softness, especially in low light."

If you focus on distant subjects by manually setting the focusing ring to infinity, because it's too dark for autofocus, "make sure you know where infinity focus is on your lenses. It's not always at the infinity setting."

Managing color temperature is another low-light issue. Available-light color temps can vary widely after dark—sodium or mercury vapor, tungsten, halogen, even daylight bounced back from the moon. "So shooting RAW in mixed light is essential," says Davidson. It lets you fine-tune white balance later in software, without the clipping that's common with JPEG capture.

There is another way to deal with widely divergent color or color temperatures. Do as Steve Landeros (www.stevelanderosphotography.com) did for his stunning sunset scene on the next page: convert to black-and-white.

High contrast and wide dynamic ranges are also often

CAMERON DAVIDSON (BUILDING); MICHAEL SHANE FOR THE VERGE (ROCKET)

ENTER-PRISING
Michael Shane covered the unveiling of the space shuttle Enterprise aboard the Intrepid Sea, Air, and Space Museum in New York last July for The Verge (www.theverge.com). Shooting with a Canon EOS 5D Mark II and 16–35mm f/2.8L Canon zoom, he managed to hold detail in both the bright highlights and inky shadows. The two he describes as being "about 10,000 stops apart." Exposure: 1/80 sec at f/2.8, ISO 1000.

STEVE LANDEROS

a factor. A source such as street lighting can be many times brighter than the surrounding shadows. In such cases, Michael Shane recommends establishing "a close, personal relationship with an image's histogram. Examine your subject and its histogram, and decide whether highlights or shadows can be clipped, and, if so, by how much. Figure into your calculations what will be salvageable later by highlight or shadow recovery."

If you're not able to hold the necessary highlight and shadow detail, consider a multiple-exposure HDR capture.

For landscape photographers such as Landeros, the Golden Hours during sunrise and sunset offer desirable lighting. At that time, however, because light is constantly changing, you can't use long shutter speeds with confidence that the exposure you determine when the shutter opens will still be accurate when it closes. "I often make exposures of between 10 and 15 minutes," says Landeros.

"To see how much the light changes during exposure, I take meter readings using either an external lightmeter or the meter in a backup camera. For sunsets, I usually end up adding about 25 percent to my starting exposure."

He has another technique for making (seemingly) low-light

photography easy: He shoots in broad daylight. The technique is commonly used by cinematographers and is called "day for night." In Landeros' Mendocino County seascape above, he shot late in the afternoon and used three neutral density filters so that the light striking his sensor was as dim as moonlight. This gave him the look of night, with all the conveniences of working in relative daylight.

DAY FOR NIGHT
Shooting at sunset, Steve Landeros added a moonlit gloom to this seascape by mounting no fewer than *three* ND filters on his Canon EF 17–40mm f/4L lens.

FASTEST GLASS

Highly specialized lenses for low-light shooting.

- **Canon EF 50mm f/1.2L ($1,619 street). Tested here in 2007, it was proclaimed the fastest normal AF lens on the planet.**
- **Canon EF 85mm f/1.2L II ($2,199, street). The world's fastest lens in the moderate tele range.**
- **Leica 50mm f/0.95 Noctilux-M ($10,995, street). This manual-focus-only lens ran the Pop Photo gauntlet in 2009 and every aperture (at our benchmark magnification) produced A+ SQF numbers. That's rare.**

Landeros also has an interesting technique for stabilizing his camera during long exposures. "When I'm shooting a beach scene like this, I use a quality tripod and sand. Once I've found my composition, I shove my tripod legs as far into the sand as possible," he says.

Indeed, one of the primary challenges in low-light photography is holding the camera still for the long exposures. For his office building on the previous page, Davidson used an unusual handheld support: a Kenyon Admiral KS-8 gyro stabilizer ($4,000, direct). Used by airborne photographers—aviator Davidson shot the building from a TwinStar helicopter—and cinematographers shooting from moving vehicles, the gyro stabilizer is about the size of a Classic Nerf football (though much heavier) and it attaches to a camera's tripod socket, where its spinning gyroscope isolates the handheld camera from external movement. When tripods won't work, either because they're not permitted or you need the freedom of handheld operation, Davidson suggests renting a stabilizer from places like Kenyon-Labs (ken-lab.com), which offers them for about $200 to $300 a week.

When not shooting in the clouds, Davidson opts for a "heavy-duty Gitzo tripod for its stability and build. I wrap a 10-pound Matthews Boa Bag sand bag ($37, street) around its legs. During long exposures, I also avoid touching or holding the tripod, and I always use a remote cable release and mirror lock-up," he concludes.

If you find yourself in low light without a tripod? Turn yourself into one. "For the space shuttle image, I took extra care to steady my camera by pressing my back against a wall, and sitting on the ground to create a low center of gravity," says Shane. Seated, you're less likely to sway than standing.

Is your camera inherently noisy at high ISOs? Avoid subjects and locations that won't allow tripod use for lower, noise-free ISOs.

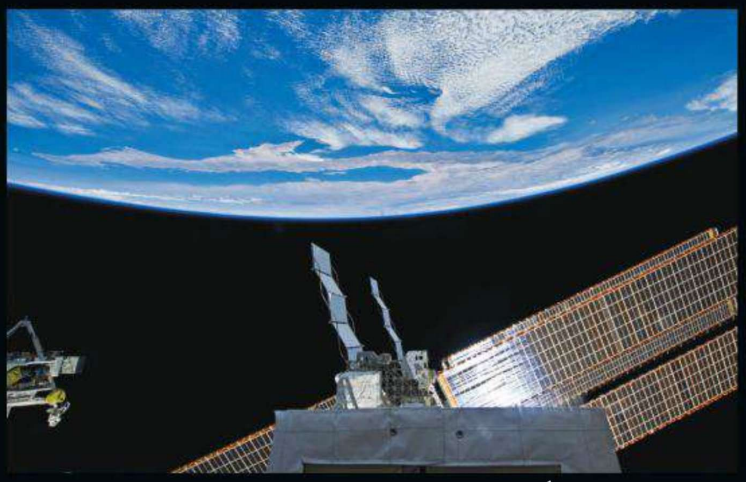
Fast glass is also essential. As Davidson puts it: "If you're going to attempt shooting in darkness, it will cost you. Cheap or slow lenses are a no-go. Better to rent something fast than waste your time in the dark with substandard glass."

BEST ACCESSORIES

Besides tripods and stabilized lenses, try...

- **Remote camera triggers help you avoid having to press a shutter release and jar the camera. Examples: PocketWizard Plus III, MicroSync II, simple cable release.**
- **Neutral-density filters for shooting low-ISO "day for night" images. Examples: Schneider True-Match Vari-ND filter, Singh-Ray Vari-N-Duo Polarizer and ND filter.**
- **Gimbal-style camera supports that give extra stability with the freedom of handholding. Examples: Glidecam HD2000, Steadicam Merlin 2, VariZoom FlowPod.**

▲GIGLIO PORTO, ITALY, 12:58; PHOTO BY JACK MIKRUT



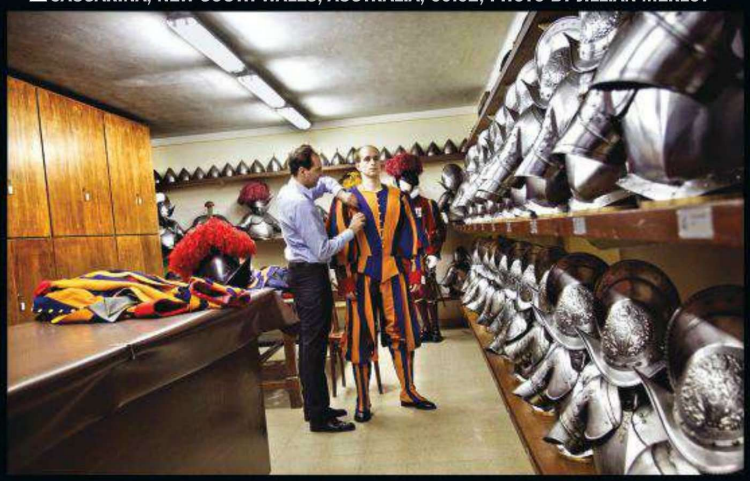
▲BAJA CALIFORNIA, 15:58 (21:58 GMT/UTC); PHOTO BY ANDRÉ KUIPERS

▲SAN FERNANDO CITY, THE PHILIPPINES, 17:15; PHOTO BY REY ESPINUEVA

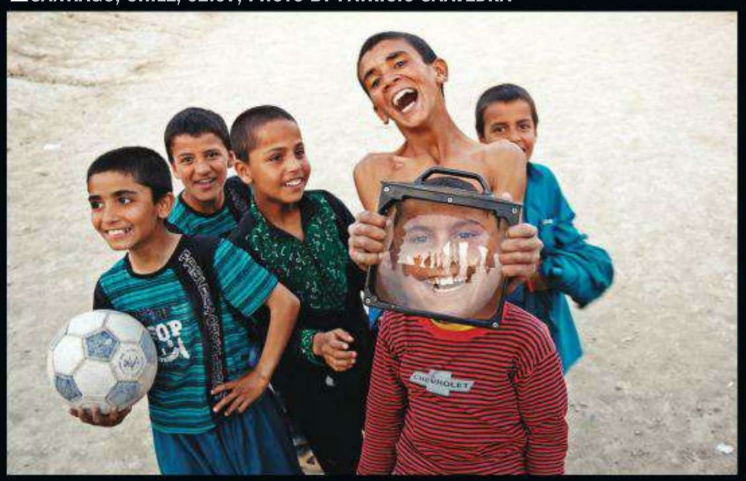
▲VAUVERT, FRANCE, 16:25; PHOTO BY CLAES LÖFGREN

▲CAUSARINA, NEW SOUTH WALES, AUSTRALIA, 09:02; PHOTO BY JILLIAN MERLOT

▲SANTIAGO, CHILE, 02:07; PHOTO BY PATRICIO SAAVEDRA



▲VATICAN CITY, 13:56; PHOTO BY STEFANO DAL POZZOLO



▲KABUL, AFGHANISTAN, 18:15; PHOTO BY ALI ZARE

In Our Time

By Miriam Leuchter

It is called *A Day in the World*. On May 15, 2012, tens of thousands of people in more than 165 countries fired up their cameras to depict, in some 100,000 photographs, the way we live now.

"I WAS JUST FINISHED with my operation in the adjacent room when I saw through the glass window that an expectant mother was about to undergo Caesarian section," recounts Rey Espinueva, an eye surgeon in the Philippines. "I then asked [her] permission to take photos while the procedure was ongoing."

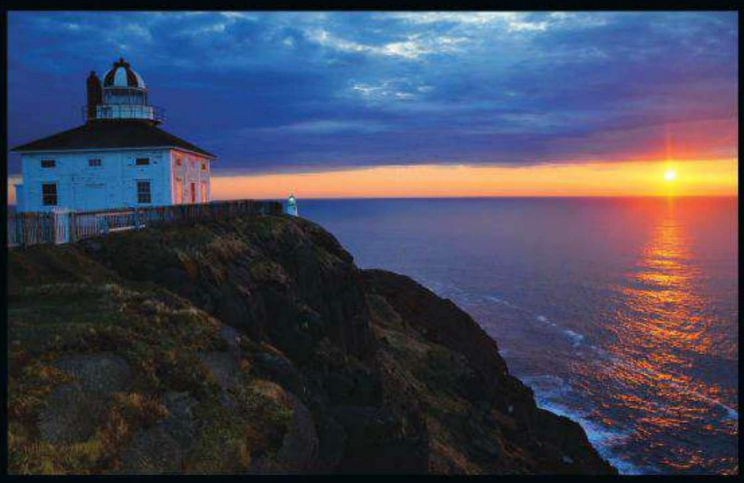
In Espinueva's portrait (far left, second from top), Rhea Monis cuddles her son Giordie, whose umbilical cord had been wrapped around his neck. He was the first of four children born that morning in the Lorma Medical Center in northwestern Luzon.

Espinueva's photograph, taken at 5:15 p.m. local time, exemplifies this extraordinary project. *A Day in*

▲LAS VEGAS, NEVADA, USA, 19:37; PHOTO BY ARNOLD DESPI

▲LONDON, UK, 07:57; PHOTO BY SUZANNE PLUNKETT

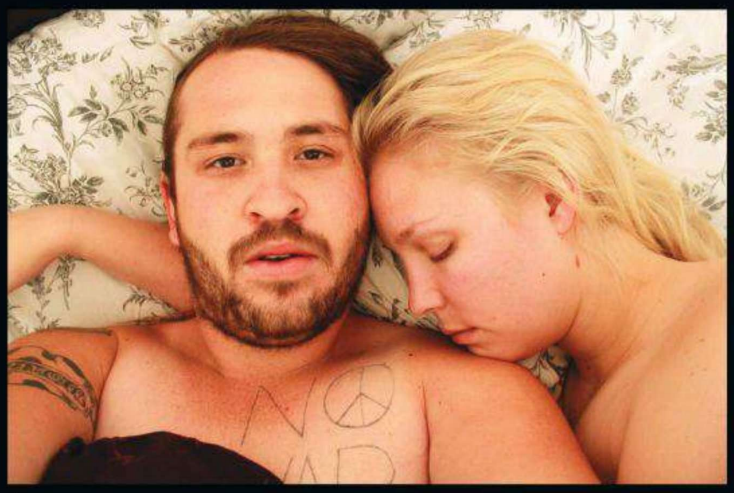
▲PARIS, FRANCE, 22:52; PHOTO BY ONS ABID



▲CAPE SPEAR, NEWFOUNDLAND, CANADA, 05:45; PHOTO BY DAVE ARMSTRONG

▲DANEBORG, GREENLAND, 09:54; PHOTO BY JESPER MICHAEL

▲STOCKHOLM, SWEDEN, 09:45; PHOTO BY JESSICA GOW



▲SUPERIOR, COLORADO, USA, 09:15; PHOTO BY TYLER TENORIO

▲GEOGRAPHIC SOUTH POLE, ANTARCTICA, 16:58; PHOTO BY SVEN LIDSTRÖM

▲SULLIGENT, ALABAMA, USA, 09:07; PHOTO BY MEGAN PRICE

SEE CAPTIONS FOR THE INDIVIDUAL PHOTOGRAPHERS; ALL IMAGES COURTESY OF ADAY.ORG

the World captures human life in pictures and in stories—all of them keyworded for researchers—over the course of 24 hours at nearly every location on the planet. And even in orbit above it, as seen in André Kuipers' view of Earth from about 220 miles above on the International Space Station (page 64).

Tourists pose near a wrecked cruise ship in Italy. A woman documents her aquatic exercise class in Australia. An aspiring pro photographer sleeps next to her pink pistol in Alabama. A photojournalist in Paris Skypes with his little sister in Tunisia. A dried-fish dealer in Nigeria shows off the business that sent her sons to college. A pedestrian captures his daily commute—at the South Pole. A son snaps his parents in a Spanish hospital.

"The one truly global language is photography," says photographer Jeppe Wikström, the editor of the project and a founder of the Scandinavian foundation Expressions of Humankind, which launched it. "We saw the same photographic styles come through from all over the world. It's very hard to judge the nationality of the photographer from the picture."

EVERY PHOTO TELLS A STORY
Clockwise from top left: Taxidermist Peter Mortensen stores a menagerie at the Swedish Museum of Natural History; Tyler Tenorio wakes up; customer service rep and aspiring pro photographer Megan Price sleeps with a .380; an aurora lights the endless night sky over the IceCube Lab.

You can lose yourself in myriad such pictures and the photographers' captions that accompany them at www.aday.org. (Because *Popular Photography* is one of many official media sponsors of the project, you may find many of your fellow readers' contributions among them.)

More than half the photographers are women. And while many of the images are by pro shooters, including a slew of photojournalists, most are by amateurs, from cellphone snappers to skilled enthusiasts.

Participants entered photos in three subject categories—Home, Work, and Connections—and then drilled down into subcatagories, such as Food, Tools, and Generations. (One surprise for the organizers: The hundreds of people who submitted photos of their own feet. Laundry also made frequent appearances, as did depictions of the workplace.) Data such as the time and place became part of the record, as did any explanatory text provided by the photographers.

So, once the website is fully functional (it was still in beta at press time), if you wanted to see how people in different cultures eat breakfast, for instance, you could easily do so. Photographers' names, professions, and other personal details promise insights into individual circumstances and broader trends.

CONTINUES ON PAGE 106

Top British Photographer

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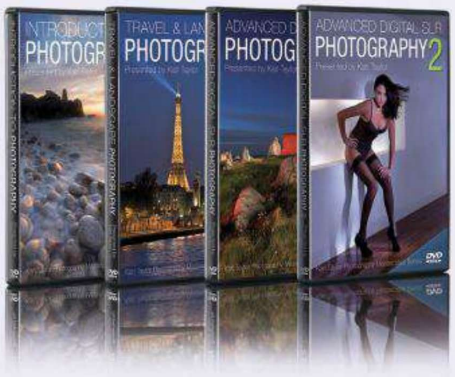

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20 Ways to Trick Out Your DSLR

Ever wish you could customize your DSLR (or ILC, or advanced compact) to make it work exactly the way you wanted? Or to make it better somehow—to make operation faster, to boost stamina, to better match a specific shooting situation, or even to make it a special-purpose camera? You can pretty much do it, with adjustments ranging from simple, no-cost setting tweaks up to physical modification of the camera.

By Dan Richards

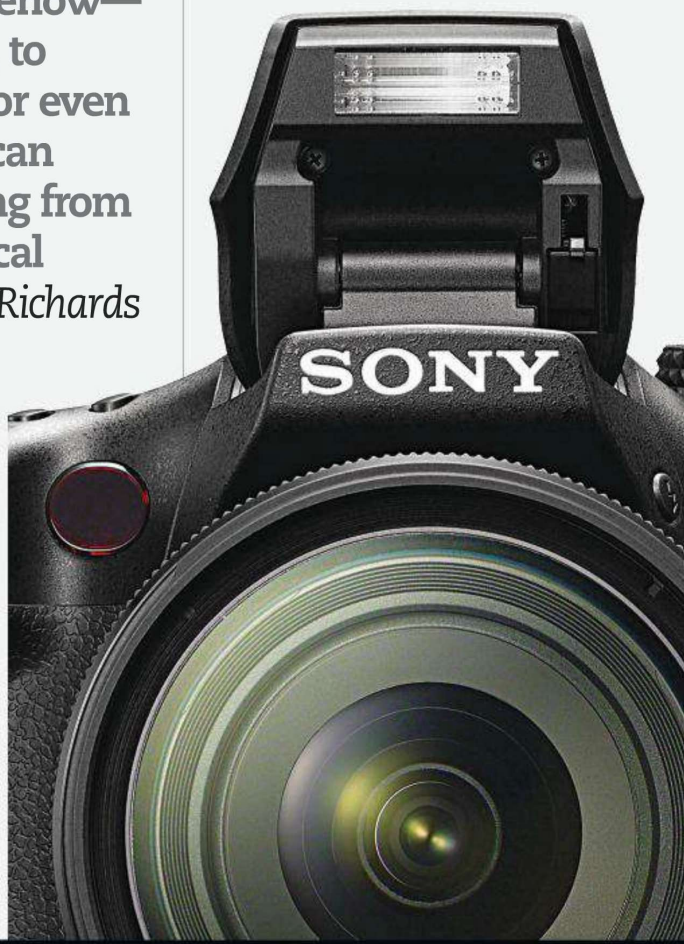
IN-CAMERA MODS

1 Reassignment of autofocus to back or function button: Probably the most universal tweak among pros and serious amateurs, this separates autofocus triggering from the shutter release button. Everyone from landscapists to action shooters values this for the ability to focus and recompose and/or focus and meter a different area of the scene.

2 Auto ISO: Until recently a function found only on compact cameras, auto ISO is migrating up into DSLRs, and we hear from serious shooters who have embraced it. This mode allows you to lock in an f-stop and shutter speed—or a specified range of settings—and the camera will automatically vary the ISO for proper exposure. If you're shooting sports, wildlife, or other action subjects in changeable light, auto ISO may be the way to go.

3 Pop-up flash exposure comp: Our editors advocate setting the built-in flash output to –1 or –1.3 EV for "walking around" mode. This way, you're ready to take people pictures with partial fill that will look more natural than a full-power pop.

4 Pop-up flash sync: The default setting is first-curtain sync, which is fine for everyday snapshots. But if you like to combine flash with slowish shutter speeds for action-defining ghosts, set the pop-up to second-curtain sync. This will smear a ghost image behind, rather than ahead of, a subject moving across the frame.



Shortcut to Square One

Okay, so you've gone hog-wild in your camera's menus, changed every custom function, located all the operations on different buttons, and now you feel you have a Frankencamera? If you want to return everything to "normal" and start over again, there's an easy way. Cameras all have a menu choice for return to default settings. It's sometimes called reset.

5 Pop-up flash slow sync: Most DSLRs with the pop-up enabled will override autoexposure if it will drop the shutter speed below a certain level (often, around 1/60 sec). So a scene that needs a slow shutter speed for correct background exposure ends up looking like a flash snapshot. You can prevent this by changing the default flash setup to slow sync.

6 Custom function(s): Most custom functions (CFs) are pretty granular—defining which way a dial turns for plus or minus, that sort of thing. But a perusal of recent camera menus showed quite an assortment of possibilities: compositional grid lines, the embedment of an authenticity stamp in image files, autofocus microadjustment, correction of distortion and chromatic aberration, catch-in focus. If you haven't reviewed all the custom functions available on your camera, we recommend doing so. You may find some hidden gems.

7 Defining a user profile: Most DSLRs now let you save multiple camera setups, either through the menus or on a mode dial such as on the Pentax K-30. You can set it up for different types of shooting, for multiple users, or for quick changes in the heat of the shoot—for instance, nature shooter Jon Cornforth recommends setting two different modes for the lighting conditions on either side of a boat when photographing whales.

CAMERA MAKER ADD-ONS

8 Vertical battery grips: These attachments provide a number of benefits. They allow composing verticals with a more natural and secure grip. The extra battery power provides for more shots, and in some cases, faster bursts. Some have space to carry extra batteries. On relatively small cameras, such as the Canon EOS Rebel T4i, the grips make the cameras friendlier to big hands.

A common modification to DSLRs today is conversion to infrared capture. This entails removal of the camera's IR-blocking filter and replacing it with an IR-passing filter. The result? A camera that you can compose and focus normally through the viewfinder, and that can display the infrared effect via the LCD.

9 GPS modules: While many cameras today have GPS built in, many do not. Camera makers accommodate geotaggers with add-on accessory units, most fitting into the hot shoe. Useful not only for recording the places of your photographs, but for organizing—you can sort by place without having to keyword the pictures.

10 Viewfinder magnifiers: If you're finicky about manual focusing, do a lot of macro work, or just plain want an enlarged view through the finder, eyepiece magnifiers are a nice accessory. We prefer types like the Nikon DG-2, which flips up and out of the way via its hinged mount.

11 Viewfinder screens: A fair number of DSLRs have focusing screens that can be interchanged by the user. A number of these screens are designed to provide easier manual focusing, so if you have manual-focus lenses, or are into DSLR video, you might check if an appropriate screen is available. For more on these, see Tech Talk on page 30.

12 Wi-Fi and Bluetooth connectivity modules: If you're big on photo sharing, connectivity modules such as Olympus' Bluetooth PenPal for Pen ILCs are a neat solution. With this, you can upload photos to your smartphone automatically.

CONTINUES ON PAGE 98

american PHOTO MODEL SHOOT

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DSLR TEST

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Canon continues to reign supreme over the entry-level DSLRs with the T4i

NEARLY EVERY year, we have a cover declaring the best Rebel ever. Even though we didn't do that this year, it would've been true if we had; Canon always manages to make improvements in its Rebel line.

With the EOS Rebel T4i ($849, body only), improvements include a new hybrid autofocus system that embeds phase-detection points on the CMOS imaging sensor, much like Nikon's System 1 cameras. The new AF system works only with Canon's new STM lenses that use stepping motors to move the elements inside the lens to achieve focus. When using such a lens, you gain reasonably fast continuous autofocus during live view or video shooting. While this system can't

SATOSHI

match the speed of continuous focusing you can get with Sony's transmissive mirror system found in that company's DSLRs, it is a very big step in the right direction for Canon. At the same time, Canon also managed to improve the T4i's noise handling over its predecessor.

In the Test Lab

Though the EOS Rebel T4i's overall Image Quality rating of Excellent from ISO 100 through ISO 400 matches that of the T3i, don't let that fool you. The T4i managed to keep noise at a Low or better rating a full two stops higher on the sensitivity scale than its predecessor. With nearly identical results in color accuracy and resolution, that's a pretty impressive achievement.

In our resolution test, the T4i served up 2560 lines per picture height, just enough to solidly earn it an Excellent rating. By ISO 800 this had fallen below the 2500 line cutoff for an Excellent rating.

Noise suppression is probably the T4i's biggest strength in terms of imaging performance. Noise remains at a Low or better rating from the lowest sensitivty setting of ISO 100 through the camera's sensitivity halfway point of ISO 1600. It doesn't reach an Unacceptable noise rating until its highest sensitivity of ISO 25,600.

Since Canon applies increasing amounts of noise reduction as the ISO increases, there's not much more room to bring noise down further at ISO 25,600. Depending on the image content, it might not be possible to bring it down

CANON EOS REBEL T4i
WHAT'S HOT
Low noise through ISO 1600.
WHAT'S NOT
Buffer holds only 6 RAW shots.
WHO IT'S FOR
Shooters seeking Canon's most powerful entry-level DSLR to date.

LINZEE LICHTMAN (LCD IMAGE)

to a noise level we'd rate as acceptable, but given our strict standards, some people may find some images shot with the T4i at ISO 25,600 usable, especially at magnifactions lower than 100 percent.

In our color accuracy test, the T4i walked away with an Excellent rating thanks to an average Delta E of 6.5. That's well below our cutoff of 8 for this lower-is-better test.

Our autofocus test showed that the T4i's regular phase-detection AF functions on par with what one can expect from an entry level DSLR. In very bright light it proved fast, focusing in 0.33 second in the brightest (12 EV) portion of our test. That's not the fastest DSLR we've seen, but it's still impressive. More impressive was that the T4i could focus in about 1.28 seconds at the dimmest light level (–2 EV) in our test. Some low-cost DSLRs won't even focus in such dim light.

The new hybrid AF system works in tandem with the standard phase-detection AF. When the mirror is flipped up for live view or video capture,

The ISO button placed near the shutter button is a great idea and helped quite a bit during our field testing.

The T4i's resolving power is more than enough for still shooters in this range.

TEST RESULTS

the camera switches to the hybrid system. That uses both contrast detection and the special phase-detection points embedded in the CMOS sensor. These latter points let the camera see the distance to the subject in a way that the contrast-detection system can't. The phase-detection points let the camera get very close to perfect focus, then the contrast detection brings it the rest of the way. In our experience with the new 40mm STM lens, the hybrid system provided much faster focusing than Canon's previous attempts at contrast detection in DSLRs. But it wasn't quick enough to keep up with faster-

For info on how we test DSLRs, go to PopPhoto.com/reviews.

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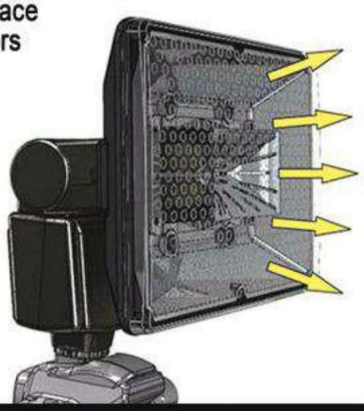

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BURST RATE: Full-sized JPEGs (Fine mode), up to 30 shots at 5 fps; RAW, up to 6 shots at 5 fps; RAW+JPEG, up to 3 shots at 5 fps; using UHS-I SDHC card.

AF SYSTEM: TTL phase-detection with 9 illuminated focus points (all cross-type); single-shot, Predictive AI Servo tracking, AI Focus; Movie Servo; tested sensitivity down to EV –2 (at ISO 100, f/1.4).

LIVE VIEW: Full-time hybrid contrast/phase detection; face detection and subject tracking available.

SHUTTER SPEEDS: 1/4000 to 30 sec, plus B (1/3- or 1/2-EV increments); shutter life not rated; flash sync to 1/200 second.

METERING: TTL metering using 63-zone system; evaluative, partial (approx. 9% of finder at center), centerweighted, and spot (approx. 4% of finder at center); range, 1–20 EV (at ISO 100).

ISO RANGE: ISO 100–12,800 (in 1- EV steps), expandable to ISO 100–25,600.

VIEWFINDER: Fixed eye-level pentamirror.

LCD: Fixed 3-in. TFT with 1,040,000-dot resolution, 7-step brightness adjustment.

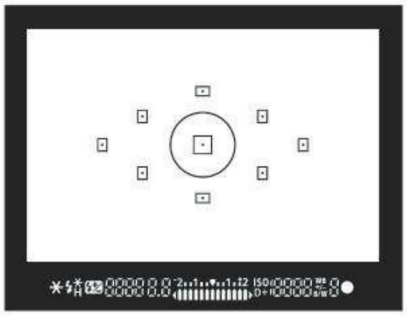
OUTPUT: Hi-Speed USB 2.0, mini-HDMI video, and composite video.

BATTERY: Rechargeable LP-E8 Li-ion; CIPA rating, 550 shots with optical viewfinder.

SIZE/WEIGHT: 5.2x3.9x3.1 in., 1.3 lb with a card and battery.

STREET PRICE: $849, body only; $900 with EF-S 18–55mm f/3.5–5.6 IS II zoom lens; $1,200 with EF-S 18–35mm f/3.5–5.6 IS STM zoom lens.

INFO: www.canoneos.com



VIEWFINDER TEST: Accuracy, 95% (Excellent); Magnification, 0.85X (Very Good).

moving subjects during video or still capture. The standard phase-detection system had no trouble keeping up with triatholon runners, such as the one seen in Showcase on pages 10–11, and other faster-moving subjects.

In the Field

Given the vast similarity to the body design of the T3i, it is enough to say that the T4i is equally impressive and just as much a pleasure to use. Many settings have dedicated buttons, and those that don't are easily changed via the quick menu.

Video shooters will appreciate that the camera now has a built-in stereo microphone as well as a stereo minijack input for an external mic. Furthermore, video footage was on par with the very pleasing footage we have come to expect from DSLRs.

Sports shooters will appreciate the increase in burst rate to a solid 5 fps in the T4i—generally our minimum threshold for sports shooting—from the T3i's 3.7 fps. Sadly for RAW shooters, the buffer can hold up to only 6 RAW shots or 3 RAW+JPEG shots per burst. So if you're planning to shoot continuously, it's best to use a UHS-I-compatible card and capture up to 30 JPEGs per burst. If your card is not UHS-I-compatible, then you can expect up to only 22 JPEGs per burst.

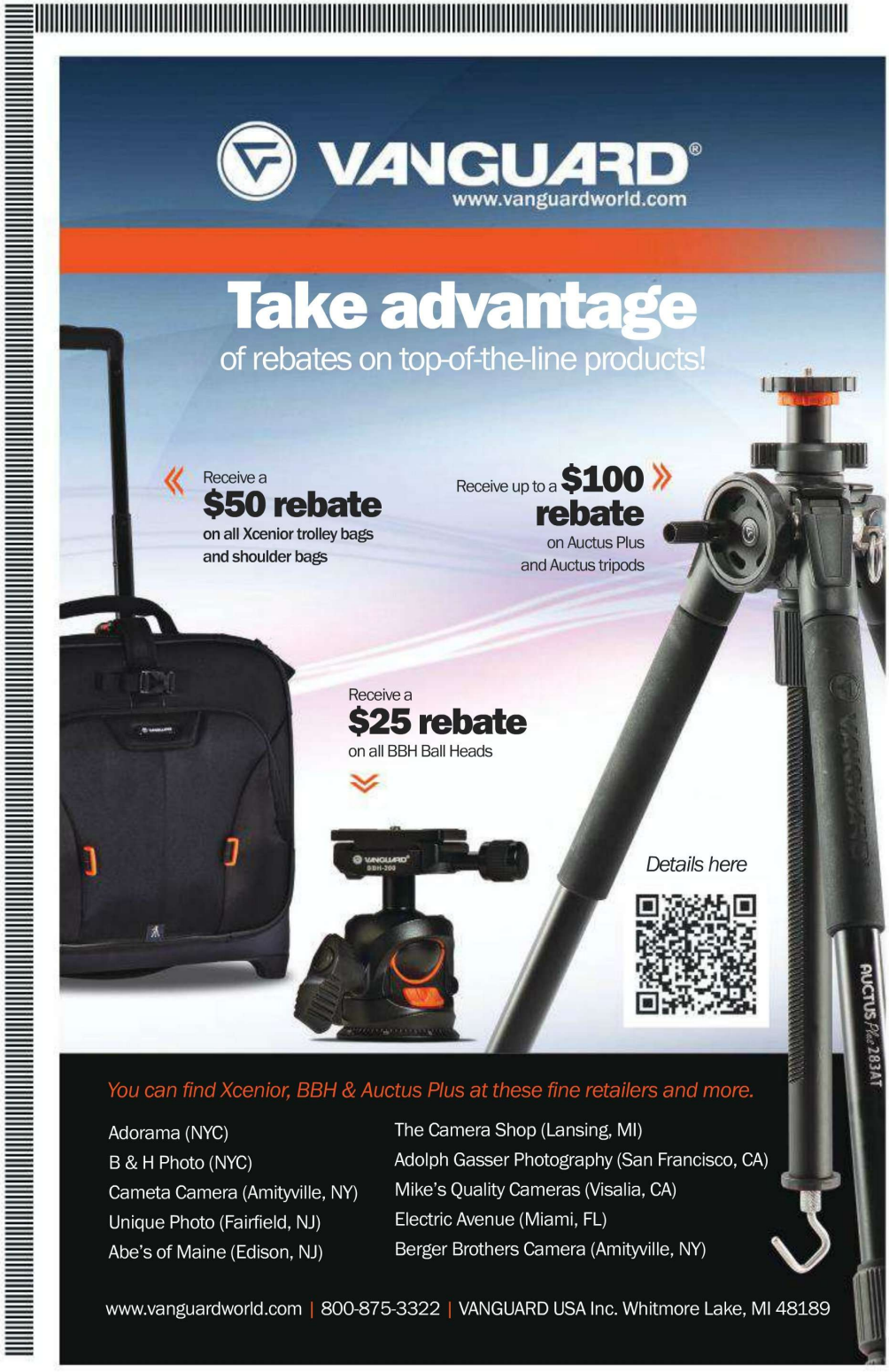
The Bottom Line

Canon continues to make the top of its Rebel line just what it needs to be. As video has been the main theme in DSLRs this year, the new, more robust AF system is a welcome addition, as is the stereo microphone.

At the same time, Canon has maintained the AF performance we've come to enjoy up to this point. It's also kept the resolution and color accuracy on par with, or above, previous Rebels. The resolution doesn't keep up with Nikon's 24MP class-leading D3200 and we wouldn't expect it to. But the T4i's resolving power is more than enough for still shooters in this range. Furthermore, the D3200 focuses slower and reaches Unacceptbale noise levels by ISO 3200—that's two stops in Canon's favor.

Both Canon and Nikon have more lenses and accessories available in their systems, and through third parties, than any ILC system can offer at this point. For high-level, low-cost shooting, the Rebel line still offers some of the best bets in imaging, and the T4i tops that list. ***—Philip Ryan***

With only one card slot in the camera, shooters who do both stills and video will want to bring an extra card when using the T4i.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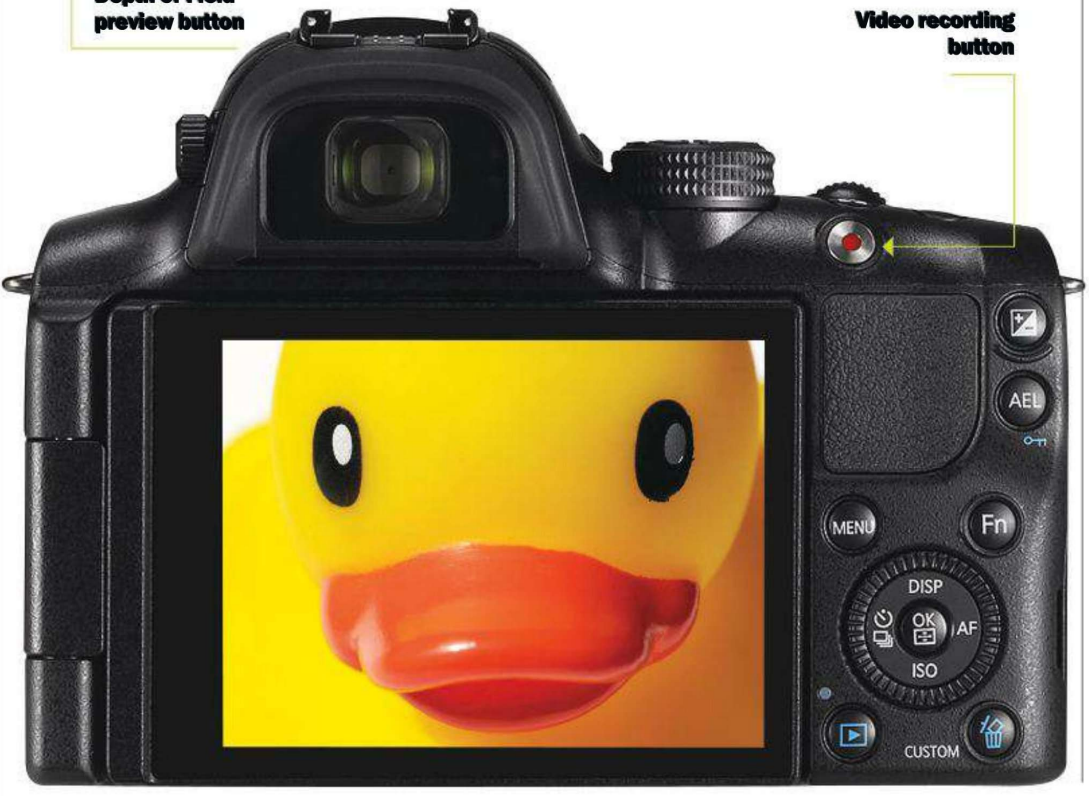

AS ONE OF the largest mobile phone makers in the world, Samsung is rightfully at the forefront of the current trend of cameras communicating with phones. In fact, Samsung's NX20 ($1,100, street, with 18–55mm f/3.5–5.6 OIS lens) can send images to your smartphone over Wi-Fi and upload images or video straight to sharing websites or cloud-storage services.

This 20.3MP interchangeable-lens compact has other added benefits. Styled like a small DSLR, it has an articulated 3-inch OLED screen, plus a built-in electronic viewfinder. And, as our tests found, it can capture quite lovely images.

In the Test Lab

In our tests, the NX20 nabbed an overall image quality rating of Excellent at ISO 100 and 200. At ISO 400, noise levels topped the Low mark, and at ISO 800 resolution dipped below our Excellent cutoff of 2500 lines per picture height and into Extremely High territory.

At ISO 100, the NX20 easily claimed an Excellent rating in resolution with 2570 lines, but at its top sensitivity of ISO 12,800, it hit 1970 lines. These numbers are for RAW files converted to 16-bit TIFF files using the software that comes with the camera. To compare, in JPEGs shot simultaneously, resolution drops by about 100 lines at low and middle ISOs and more as the sensitivity rises. By ISO 12,800, JPEG resolution dropped to 1775.

In our noise test, the NX20 fared slightly better than its sibling, the NX200, with ratings of Low or better through ISO 800. In both cases, the RAW conversion software,

SAMSUNG NX20

WHAT'S HOT

Wi-Fi, great image quality, small size.

WHAT'S NOT

Continuous AF can't keep up with burst.

WHO IT'S FOR

People looking for an ILC with wireless image transfer to mobile phones.

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a modified version of Silkypix, doesn't vary the amount of noise reduction applied as the ISO changes. So the JPEG noise results beat our RAW results—there seems to be different amount of NR applied to those files when processed in the camera, resulting in less effective resolution.

The advantage is that, when shooting JPEGs, the NX20 maintains a Low or better noise rating up to ISO 800. Furthermore, noise doesn't reach an Unacceptable rating until the camera's top ISO of 12,800. If our test results were based on JPEGs, the NX20 would end up with an Extremely High rating in overall Image Quality from ISO 100 through ISO 1600. And with the ease of file sharing, it's clear that the camera is aimed more at JPEG than RAW shooters.

As lovely as its undulating curves are, we really fell for the array of buttons, dials, and switches on top of this camera.

Color accuracy proved Excellent with an average Delta E of 7.4. (typical of ILCs and DSLRs, but still worth accolades).

In the Field

With a grip that gives you enough to hold onto yet retains a shallow profile for a relatively slim look, the NX20 strikes an acceptable compromise for handheld comfort. You still feel like you're pressing toward the camera back instead of grasping around the grip, but we've held worse.

Furthermore, the body feels solid, and the array of buttons made essential settings easy enough to change when shooting. The lovely OLED screen is fully articulated and bright enough for trouble-free viewing in sunlight.

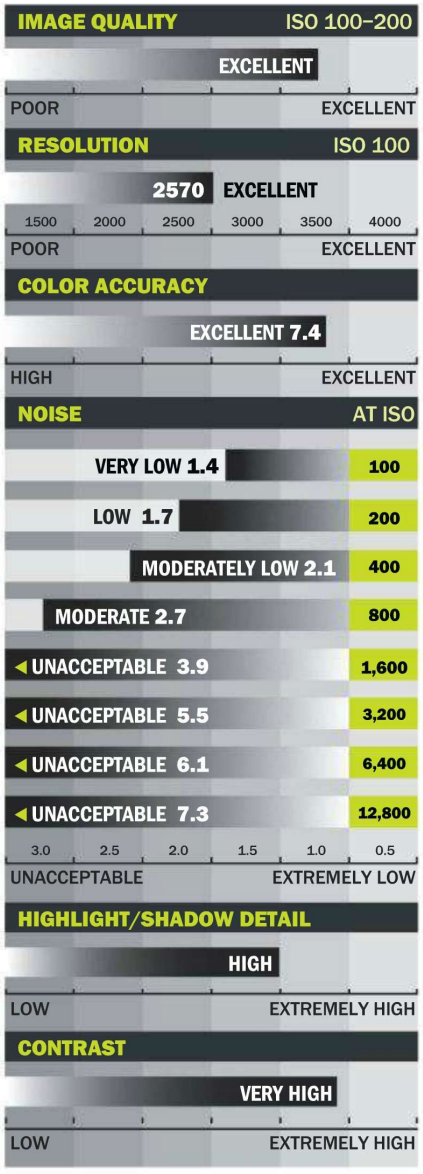
While Sony's OLED EVF remains our favorite nonoptical finder, the LCD version in the NX20 has a very fast refresh rate—it is one of the best LCD EVFs we've seen.

Autofocus proved fast compared with other ILCs. While the NX20 offers continuous AF in video recording, and it deals well with slower camera and subject movement, you may have trouble tracking faster subjects.

During continuous drive mode, which refocuses and re-meters between shots, the AF couldn't quite keep up with the the camera's otherwise impressive burst rate of 8 frames per second. If you run into problems, you can always dial this back to 3 fps by selecting the Low continuous mode. The burst mode

The NX20 captures images with plenty of detail and little noise.

TEST RESULTS



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Digital SLR's

Canon Rebel T4i

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The 18MP Rebel T4i delivers phenomenal image quality, high performance, and fast, intuitive operation. It features high-speed continuous shooting of up to 5.0 fps, a 9-point all cross-type AF system, and a new Hybrid CMOS AF System that increases autofocus speed when shooting photos and video in Live View. First ever for an EOS Rebel, it sports a Vari-angle Touch Screen 3.0-inch Clear View LCD monitor II, which allows fast and intuitive camera operation.

Samsung NX1000 NEW!

Style and Perfection, All in One

Samsung's mirrorless NX1000 interchangeable lens camera sports a 20.3MP CMOS sensor, a 3-" TFT LCD & records HD video at 30 FPS. Built-in Wi-Fi connectivity lets you connect to a wireless network. Save photos & videos directly to a computer or cloud service while you shoot, email them, print them wirelessly, or upload them straight to Facebook, Twitter or YouTube. You'll never have to worry about losing a great shot, running out of storage space, or remembering to bring the right cable along.

Sony Alpha NEX-5N

Mini Marvel

Get a perfectly pocket-sized 16.1MP interchangeable lens camera made for capturing beautiful stills on the go at up to 10 frames per second. Record in Full HD 1080/60p or 24p video, take astonishing pictures in low-light with the large Exmor™ APS HD CMOS sensor or get beautiful panoramic shots in 2D or 3D. Put control at your fingertips with the highly responsive, conveniently tiltable 3.0" Live View touch screen LCD.

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The AF 18-270 covers an angle of view equivalent to that of a 28mm wideangle to a 419mm ultra telephoto with just one lens, letting the user capture once-in-the-lifetime images of panoramic landscape images or close-up pictures of children smiling, without having to get too close to the subject and without having to change lenses.

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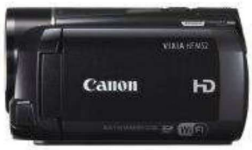

The VIXIA HF M52 camcorder has 32GB of internal memory to record up to 12 hours of stunning HD video. Built-in Wi-Fi™ means you can immediately upload video directly to YouTube™, Facebook™ or your own home computer. Upload video anywhere with your iPhone™, iPad™ or iPod Touch™, and enjoy wireless viewing on your DLNA™-compatible TV.

Vixia HF M500

A brilliant blend of capability and convenience.

VIXIA HF M500 sports a pro-level Canon HD CMOS Pro Image Sensor and a Flat Touch Panel LCD. Intelligent IS and SuperRange Optical Image Stabilization designed for Canon's 10x HD Video Lens make every scene clear and steady, and new built-in features make it easy to give your videos added creativity.

XA10 Pro HD

The On-the-go Videographer's Dream

This feature-rich, professional model records Full HD 1080p to either its 64GB internal flash drive or 2 SDXC-compatible card slots. Including the ability to record simultaneously to both cards for instant backup. It includes a detachable handle for low-angle shooting and portability. A Genuine Canon 10x HD Video Lens delivers a wide, flexible zoom range (35mm equivalent range 30.4mm-304mm) and smooth, pleasing backgrounds.

Vixia HF R300

Express Yourself like Never Before

The VIXIA HF R300 is equipped with flexible features to suit your shooting and sharing needs. Superb imaging is ensured with Canon's 3.28 Megapixel Full HD CMOS Image Sensor and DIGIC DV III Image Processor. Full HD Video is steady and clear even at the large end of the 51x Advanced Zoom

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can actually capture as fast as 30 fps, but this does not use the mechanical shutter or capture at the full pixel count (just 5MP), and neither focuses nor meters between shots.

The video we captured with the NX20 was on par with most ILCs: It was sharp, with well-saturated colors and minimal video artifacts.

Finally, the Wi-Fi worked nearly flawlessly, sending images to a Motorola Droid2 phone, directly uploading to Facebook through a home wireless router, and using the same Droid2 as a remote viewfinder. But it's a tad odd that transferring images to a phone and using the remote finder require different apps. And, though comments on the Google Play Store noted difficulty with the apps with certain phones, our experience was quite pleasant.

The Bottom Line

Samsung's NX20 does a solid job of capturing pictures with plenty of detail and, with some tinkering, pleasingly low noise.

And it fared better in our field testing than the earlier NX200 did. The NX20 still makes you wait to change settings as it processes and writes multiple files to the card after a burst. But, it proved more responsive in most other functions, and seemed to process and write those files faster.

With Canon joining the ILC crowd (see page 18) Samsung has more competition than ever in this space. Among its strengths: It has a significantly more extensive lineup of lenses than any ILC system other than Micro Four Thirds. Plus, if the 85mm f/1.4 (tested on the opposite page) is any indication, we can expect more high-quality glass for this system.

Samsung's competitors should watch out—the NX20 might just mark the point where Samsung really digs in its heels on the ILC front. For an advanced photographer who wants to share images easily, right from the camera, the NX20 is a compelling choice. *—Philip Ryan*

SPECIFICATIONS

IMAGING: 20.3MP effective, APS-C-size CMOS sensor captures images at 5472x3648 pixels with 12 bits/color in RAW mode.

STORAGE: SD, SDHC, and SDXC. Stores JPEG, SRW RAW, or RAW + JPEG files.

VIDEO: Records up to 1920x1080 pixels at 30 or 1920x810 at 24 fps in MPEG-4 H.264 format; built-in monaural microphone; stereo microphone input; continuous AF available; 25-min. max. clip size at highest quality.

BURST RATE: Full-sized JPEGs (Super Fine), up to 11 shots at 8 fps; RAW, up to 8 shots at 8 fps.

AF SYSTEM: TTL contrast-detection with adjustable size, single-point selectable (from up to 165 points), or 15-point multi-area; single-shot or continuous; face recognition (up to 10 faces) available.

SHUTTER SPEEDS: Mechanical shutter: 1/4000 to 30 sec, plus B (1/3-EV increments); shutter life not rated; Electronic shutter: 1/8000 to 30 sec., plus B (1/3-EV increments); flash sync to 1/180 second.

METERING: TTL metering using 221-segment system; Multi (evaluative), centerweighted, and spot (size of spot not specified); range, 0 to 18 EV (at ISO 100).

ISO RANGE: ISO 100–12,800 (in 1- or 1/3-EV steps).

FLASH: Built-in pop-up, GN 11 (ISO 100), covers field of view of 28mm (full-frame) lens.

EVF: Fixed eye-level LCD with 480,000-dot resolution, 100% accuracy, 0.68X magnification.

MONITOR: Articulated 3.0-in. AMOLED with 614,000-dot resolution, five-step brightness adjustment.

OUTPUT: Micro-Hi-Speed USB 2.0, mini-HDMI video.

BATTERY: Rechargeable BP1310 Li-ion; CIPA rating, 360 shots; Video: approx. 140 min.

SIZE/WEIGHT: 4.8x3.5x1.6 in., 0.9 lb with a card and battery.

STREET PRICE: $1,100, with 18–55mm f/3.5–5.6 OIS zoom lens.

INFO: www. samsung. com

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SAMSUNG'S TELE PRIME AMAZES

SAMSUNG CONTINUES to beef up an impressive line of prime lenses for its NX interchangeable-lens compacts with this high-speed 85mm f/1.4 ED SSA ($999, street). Joining the 16, 20, 30, and 60mm lenses, the 85mm is a very impressive, pro-quality hunk of glass, certainly one of the top optics available in the ILC format. It features a sonic focusing motor (SSA stands for supersonic actuator.) and an element of special low-dispersion glass, uncommon for the breed. It's about a 130mm full-frame equivalent.

While its impressive speed and useful focal length are perhaps its most desirable traits, the lens also boasts Samsung's convenient i-Function button, which lets you adjust camera settings from a lens-based control collar. The settings vary depending on the autoexposure mode and can be customized from the system defaults. On our NX20, the lens-controllable options ranged from the standard shutter, aperture, and ISO, to a digital i-Zoom mode that allows this fixed-focal-length optic to spookily mimic a zoom.

Average in size for an 85mm f/1.4, it's nevertheless a huge

CONTINUES ON PAGE 96

SAMSUNG 85MM F/1.4 ED SSA

WHAT'S HOT

High speed with flawless optics.

WHAT'S NOT

Bulky and slightly slow-focusing.

WHO IT'S FOR

Samsung shooters wanting the best glass available for their NX body.

DAN BRACAGLIA

SPECIFICATIONS

85MM (83.62mm tested), f/1.4 (N/A*), 10 elements in 8 groups. Focus ring turns 140 degrees.
DIAGONAL VIEW ANGLE: 18 degrees.
WEIGHT: 1.62 lbs.
FILTER SIZE: 67mm.
MOUNTS: Samsung NX.
INCLUDED: Lenshood.
STREET PRICE: $999.
WEBSITE: samsung.com

TEST RESULTS

DISTORTION: 0.02% (Imperceptible) complex.
LIGHT FALLOFF: None.
CLOSE-FOCUSING DISTANCE: 29.75 inches.
MAXIMUM MAGNIFICATION RATIO: 1:6.73.

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Short Stack

CANON WHIPS UP A PANCAKE

THE FIRST-EVER Canon pancake lens for DSLRs (there's another for the new EOS M interchangeable-lens compact), this new 40mm f/2.8 EF STM is quite possibly the smallest full-frame AF lens in production. Barely larger than a body cap, it's also fast and very favorably priced at $199, street.

Scaling up to a 64mm equivalent on APS-C bodies, it includes Canon's new STM stepping motor designed to allow continuous autofocus during video and live-view capture. Mating with the new Movie Servo AF mode in newer bodies such as the EOS Rebel T4i and M (with an adapter), this lens delivers much smoother, faster, and quieter AF. It also delivers all the advantages of a bright f/2.8 aperture: beautifully defocused fore- and backgrounds, as well as sharper pictures in low light.

Weighing less than 5 ounces and accepting 52mm filters, its diameter is dramatically larger than its length. In the field, the advantages are instant: For people pictures, its unobtrusive profile was hugely helpful. And generally it made for a rig that was much easier to hold, aim, and operate than the norm.

Noteworthy, too, is its electronic form of manual focusing. Similar to the manual focusing on early EF telephoto lenses, it uses a motor, not mechanical linkage, to move the focusing elements in MF mode. When you turn the MF ring, a series of electronic signals go to the stepping motor, driving the lens elements. (This works only when the camera's shutter release has been half-pressed). Like the AF action, this electronic MF is quiet, smooth, and responsive.

You can also focus manually in AF mode—with practice: You must first lock focus in the single-shot AF mode, then, while half-pressing the shutter release, finesse focus by manually spinning the MF ring. This may be a little easier if you use one of your camera's back buttons to find and hold AF. In general,

CONTINUES ON PAGE 100

CANON EF 40MM F/2.8 STM
WHAT'S HOT
Tiny, sharp, distortion-free, affordable.
WHAT'S NOT
Hood not included; tricky electronic MF.
WHO IT'S FOR
Canon shooters for whom size matters or who want fluid AF in video.

SPECIFICATIONS

40MM (38.92mm tested), f/2.8 (2.86 tested), 6 elements in 4 groups. Focus ring turns 150 degrees.
DIAGONAL VIEW ANGLE: 57°.
WEIGHT: 0.31 lbs. **FILTER SIZE:** 52mm.
MOUNTS: Canon AF.
STREET PRICE: $199.
WEBSITE: usa.canon.com

TEST RESULTS

DISTORTION: 0.11% (Slight) barrel.
LIGHT FALLOFF: Gone by f/4.
CLOSE-FOCUSING DISTANCE: 11.37 inches.
MAX. MAGNIFICATION RATIO: 1:4.91.

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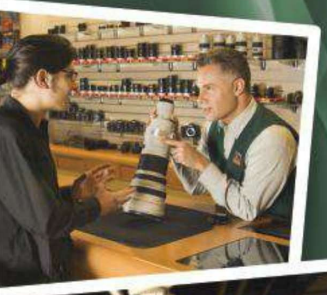

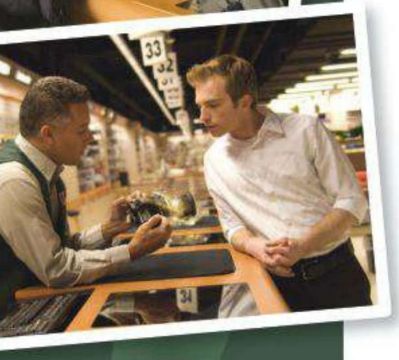

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- 2.8" Vari-Angle LCD • 1280 x 720p HD Video Capture • Stereo Sound for Video
- 5x Optical Zoom • 4x Digital Zoom
- 6.1-30.5mm f/2.8-4.5 (35mm equiv: 28-140mm) • SD/SDHC/SDXC Card Slot
- RAW File Mode • Dim.: 4.41 x 3 x 1.9"

*#CAPSG12**

10 Mega Pixels

Canon PowerShot G1 X

- 3.0" Vari-Angle LCD • Full 1080p HD Video • Optical Viewfinder
- 4x Optical Zoom • 4x Digital Zoom
- 15.1-60.4mm f/2.8-5.8 (35mm equiv: 28-112mm) • SD/SDHC/SDXC Card Slot
- Manual & Numerous Other Shooting Modes

#CAPSG1X

14 Mega Pixels

Nikon Coolpix AW100

- 3.0" LCD • 5x Optical Zoom
- 5-25mm f/3.9-4.8 (35mm equiv: 28-140mm) • SD/SDHC/SDXC Card Slot
- Waterproof to 33' Deep
- Shockproof for Drops up to 5'
- Full HD 1080p Video with Stereo Sound

#NICPAW100 Black, Blue, Orange*

16 Mega Pixels

Panasonic Lumix DMC-ZS20

- 3.0" Smart Touch LCD Screen
- 1920 x 1080 Full HD Video Capture
- 20x Optical Zoom • 40x Digital Zoom
- 4.3-86mm f/3.3-6.4 (35mm equiv: 24-480mm) Leica DC Vario-Elmar Lens
- SDHC/SDXC Card Slot • Manual Control

#PADMCZS20 Black, Red, Silver, White*

14 Mega Pixels

SONY CyberShot DSC-W610

- 2.7" LCD • 720p HD Video
- iAuto Mode • 4x Optical Zoom
- 4.7-18.8mm f/2.8-5.9 (35mm equiv: 26-105mm) • Face Priority Function
- MS Duo, SD/SDHC/SDXC Card Slot
- Sweep Panorama Mode Up to 360°

#SODSCW610 Black, Blue, Green, Pink, Silver*

14 Mega Pixels

MEMORY CARDS

CF Compact Flash

	Delkin			Kingston				Lexar		Sandisk			
	500x	700x	1000x	Std	Elite Pro 133x	Ultimate 266x	Ultimate 600x	400x	1000x	Ultra 30 MBs	Extreme 60 MBs	Extreme Pro 90 MBs	Extreme Pro 100 MBs
8GB	22.50	—	—	13.95	16.49	—	—	37.95	—	27.95	46.95	—	—
16GB	36.95	74.99	119.99	—	—	28.50	56.95	69.95	127.95	49.95	74.50	118.95	—
32GB	68.50	134.95	199.99	—	—	58.50	94.74	122.95	224.00	—	124.95	212.50	—
64GB	136.95	319.95	399.99	—	—	—	—	218.50	413.00	—	252.95	416.95	—
128GB	—	579.95	649.99	—	—	—	—	376.95	715.95	—	—	—	833.95
256GB	—	—	999.99	—	—	—	—	—	—	—	—	—	—

MSDUO Memory Stick Pro Duo

	Sony	
	Mark II	Pro-HG HX
2GB	7.95	—
4GB	13.99	—
8GB	—	34.95
16GB	—	49.95
32GB	—	83.95

SDXC-UHS-1 Extended Capacity

	Delkin		Lexar		Sandisk		
	600x	633x	Class 10 400x	Class 10 600x	Class 10 30 MBs	Class 10 45 MBs	Class 10 90 MBs
64GB	119.99	159.95	96.95	149.95	68.50	87.95	163.50
128GB	229.99	—	179.95	—	—	184.95	—

Note: Not all devices support SDXC cards

SDHC-UHS-1 Ultra High Speed

	Delkin		Kingston	Lexar		Sandisk		Panasonic	Sony
	600x	633x	Ultimate XX 35 MBs	Class 10 400x	Class 10 600x	Ultra 30 MBs	Extreme Pro 90 MBs	Gold 25 MBs	Pro Class 10	Pro Class 10
8GB	24.99	28.95	27.95	18.95	—	13.50	26.45	19.95	54.95	17.48
16GB	34.99	54.95	59.95	29.50	44.95	16.95	43.95	39.95	99.95	29.36
32GB	59.99	99.95	129.95	49.95	79.00	36.50	83.95	79.95	196.50	59.95

SD HC Secure Digital High Capacity

	Delkin		Kingston			Lexar		Sandisk				Sony	
	Pro Class 6	Pro Class 10	Standard Class 4	Ultimate X Class 10	Micro Class 4 Multi Kit	Std Class 4	Platinum II 100x	Std Class 4	Ultra	Extreme Class 10	Micro Class 4	Standard Class 10	Micro Class 4
4GB	—	7.95	—	—	6.95	6.45	7.95	6.50	8.23	12.95	6.95	—	7.19
8GB	12.95	9.95	6.95	11.95	8.95	9.50	9.95	7.95	—	14.95	—	9.95	10.34
16GB	—	14.95	8.95	18.04	10.99	14.95	16.95	11.99	—	24.95	12.43	18.95	—
32GB	—	29.95	19.95	37.95	24.95	25.95	29.95	23.95	—	43.95	24.50	29.95	—

XQD High-Speed for Nikon D4

	Sony	
	H Series 125 MBs	S Series 168 MBs
16GB	129.99	—
32GB	229.99	258.95
64GB	—	458.95

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Travel Tripods

Sturdy yet superbly lightweight tripods with legs that fold upward 180° to create an extremely compact package for transport – with the included head attached. For further versatility for travelers, one of the legs unscrews from the chassis and attaches to the head & carbon-fiber center column to form a working-height monopod. These full-sized tripods with head ensure a stable base for any DSLR body/lens combination with multiple accessories, or for a compact HD video camera.

- One Leg, Column & Head Form Monopod • Removable Head
- Forged Aluminum Chassis • Pan & Tilt Control • Retractable Spikes in Feet

Model	Included Head	Load Capacity	Max. Height	Folded	Weight	SKU #	Price
Anodized Aluminum Series with Head							
AT-3400	BA-00T	6.6 lb	56.7"	15"	3 lb	#OBAT3400BA00	$149.95
AT-3410	BA-00T	6.6 lb	59.4"	16.5"	3.4 lb	#OBAT3410BA00	$224.95
AT-3420	BA-0T	11 lb	62.6"	17.7"	4.2 lb	#OBAT3420BA0T	$259.95
6x Carbon Fiber Series with Head							
CT-3400	BB-0T	12.4 lb	56.7"	15"	3 lb	#OBCT3400BB0T	$349.95
CT-3410	BB-0T	16.8 lb	59.4"	16.5"	3 lb	#OBCT3410BB0T	$399.95
CT-3420	BB-1T	22 lb	62.8"	17.7"	4 lb	#OBCT3420BB1T	$449.95
CT-3500	BB-0T	12.4 lb	53.3"	12.8"	2.5 lb	#OBCT3500BB0T	$349.95
CT-3510	BB-0T	16.8 lb	60.6"	15.5"	3.2 lb	#OBCT3510BB0T	$399.95
CT-3520	BB-1T	22 lb	64.8"	16.5"	4 lb	#OBCT3520BB1T	$469.95

OLYMPUS E-PM1 Mirrorless System Camera

- 3.0" LCD with AR Coating
- High Speed Live MOS Sensor
- TruePic VI Image Processor
- 4/3 Full Frame Zuiko Lenses
- SD/SDHC/SDXC Card Slot
- Live View Mode
- TTL Metering
- 1080/60i HD Video Capture
- 3D Photo Capture
- Available in Black, Brown, Pink, Purple, Silver, White

*Kit with 14-42mm II Lens.....#OLEPM11442**

12 Mega Pixels

Panasonic Lumix DMC-GH2 Mirrorless System Camera

- 1920x1080 60i HD Video
- 3" Free-Angle LCD
- Micro 4/3 Lens Mount
- SD/SDHC/SDXC Card Slot
- Touch Screen Control for Stills/Video
- Dust Reduction System
- Dolby Stereo Sound with Video
- Fastest Level of Light Speed AF
- MEGA O.I.S. (Optical Image Stabilizer)

Kit with 14-42mm G Vario Lens..... #PADMCGH2K1

16 Mega Pixels

Panasonic Lumix DMC-GX1 Mirrorless System Camera

- 1080/60i HD Video Capture
- 3.0" Touch Enabled LCD
- Micro 4/3 Lens Mount
- Built-In Flash, Hot Shoe and Mode Dial
- SD/SDHC/SDXC Card Slot
- Movie iA and Creative Movie
- Lumix LightSpeed Focusing
- Super O.I.S. (Optical Image Stabilizer)
- Available in Black or Silver

*Kit with 14-42mm G Vario Lens.....#PADMCGX1XK**

16 Mega Pixels

SONY Alpha NEX-5N DSLR

- BIONZ Image Processor
- Tiltable 3.0" Touch LCD
- Accepts Sony E-Mount Lenses
- Up to 10 FPS Shooting
- 1080/60p HD Movie Capture
- SD/SDHC Card Slot
- Photo Creativity Touch
- Sweep Panorama
- HDMI Output
- Available in Black or Silver

Black with 18-55mm Lens.....#SONEX5NKB
Silver with 18-55mm Lens.....#SONEX5NKS

16 Mega Pixels

SONY Alpha SLT-A57 DSLR

- 3.0" 921,600-dot Tiltable LCD
- Full HD 1080p with AVCHD 2.0
- Sony A-mount Lens Mount (1.5x factor)
- MS/MS Pro & SD Media Slot
- Auto Portrait Framing
- ISO 100-16000
- Tru-Finder EVF

Body Only..... #SOSLTA57
Kit with 18-55mm Lens .....#SOSLTA57K

16 Mega Pixels

SONY Alpha SLT-A77 DSLR

- Upgraded BIONZ Image Processor
- 2nd Gen Translucent Mirror Design
- OLED Electronic Viewfinder
- Swivel/Tilt 3.0" LCD Screen
- Uses Sony Alpha Lenses (1.5x factor)
- Built-In GPS
- Dual Media Slots
- 1080p HD Movie Capture
- SteadyShot INSIDE Stabilization

*Body Only..... #SOSLTA77V**

24 Mega Pixels

OLYMPUS

Flash System

FL-300R Flash	169.95
FL-600R Flash	299.95
FL-50R Flash	499.95
RF-11 Ring Flash	249.95
SRF-11 Ring Flash Set	559.95
TF-22 Twin Flash	449.95
STF-22 Twin Flash Set	739.95

Zuiko 4/3 System Digital Lenses

8/3.5 Fish-eye ED	799.99
35/3.5 Macro ED (52ø)	229.95
50/2.0 Macro ED (77ø)	499.95
150/2.0 ED (82ø)	2,499.95
300/2.8 ED	6,999.95
7-14/4.0 ED (72ø)	1,799.95
11-22/2.8-3.5 ED (72ø)	799.95
12-60/2.8-4 ED SWD (72ø)	999.95
14-42/3.5-5.6 ED (58ø)	249.95
18-180/3.5-6.3 ED (62ø)	499.95
35-100/2.0 ED (77ø)	2,499.99
40-150/4-5.6 ED (58ø)	279.95
50-200/2.8-3.2 ED SWD (67ø)	1,199.95
90-250/2.8 ED (105ø)	5,999.95
EC-14 1.4x Teleconverter	439.95
EC-20 2x Teleconverter	479.95
MF-1 OM Lens Adapter	83.95

PENTAX

AF Flash System

AF-360FGZ	
AF-540FGZ	

SMCP-DA Digital AF Lenses

14/2.8 ED IF (77ø)	
15/4.0 ED AL (49ø)	
35/2.8 Mac. Limited (49ø)	
55/1.4 Limited (58ø)	
21/3.2 AL Limited "Pancake" (49ø)	
40/2.8 Limited "Pancake" (49ø)	
70/2.4 Limited "Pancake" (49ø)	
200/2.8 ED IF	
300/4.0 ED IF SDM (77ø)	
10-17/3.5-4.5 ED IF (77ø)	
12-24/4 ED AL IF (77ø)	
16-45/4 ED AL (67ø)	
16-50/2.8 ED AL IF SDM (77ø)	
17-70/4.0 AL IF SDM (67ø)	
18-55/3.5-5.6 AL II (52ø)	
50-135/2.8 ED IF SDM (67ø)	
50-200/4-5.6 ED WR (52ø)	
55-300/4-5.8 ED (58ø)	
60-250/4.0 ED IF SDM (67ø)	

AF Lenses for 35mm & Digital SLRs

31/1.8 Limited (58ø)	
50/1.4 (49ø)	
43/1.9 Limited "Pancake" (49ø)	
50/2.8 Macro (52ø) with Case	
77/1.8 Limited (49ø)	
100/2.8 D FA AW Macro (49ø)	

SONY

Compatible with Maxxum DSLRs

Flash System

HVL-F20AM	149.99
HVL-F20S	149.99
HVL-F43AM	349.99
HVL-F58AM	499.99

Digital Lenses

16/2.8 Fish-eye	999.99
20/2.8 (72ø)	749.99
24/2 Carl Zeiss (72ø)	1,399.99
35/1.4 G (55ø)	1,499.99
50/1.4 (55ø)	449.99
50/2.8 Macro (55ø)	599.99
85/1.4 Carl Zeiss (72ø)	1,699.99
100/2.8 Macro (55ø)	799.99
135/1.8 Carl Zeiss (77ø)	1,799.99
135/2.8 STF (72ø)	1,399.99
300/2.8 G APO	6,999.99
11-18/4.5-5.6 DT (77ø)	799.99
16-35/2.8 ZA SSM Carl Zeiss (77ø)	1,999.99
16-80/3.5-4.5 DT Carl Zeiss (62ø)	999.99
16-105/3.5-5.6 DT (62ø)	699.99
18-200/3.5-6.3 DT Aspherical (62ø)	549.99
18-250/3.5-6.3 DT (62ø)	649.99
24-70/2.8 Carl Zeiss (77ø)	1,999.99
70-200/2.8 G APO (77ø)	1,999.99
70-300/4.5-5.6 G (62ø)	999.99
75-300/4.5-5.6 (55ø)	249.99
1.4x Teleconverter	549.99
2x Teleconverter	549.99

OLYMPUS
50mm f/2 Macro ED Zuiko Digital Lens

- *Designed exclusively for Digital SLRs*
- Ideal for macro photography and also as a portrait lens
- Magnification 1:2
- ED glass element
- Min. focus: 9.45"
- 52mm filter diameter
- Weight: 10.6 oz

PENTAX
18-135mm f/3.5-5.6 ED AL (IF) DC WR Digital Lens

- *Designed exclusively for Digital SLRs*
- SP Coating Repels Dust, Water, & Grease
- Weather resistant
- Quick-Shift Focus System
- Min. focus: 1.3'
- 62mm filter diameter
- Weight: 14.3 oz

SONY
HVL-F58AM Shoe-Mount Digital Flash

- Zoom Head (24-105mm)
- Bounce & Swivel Head
- Guide No. 190'
- TTL Dedication
- Vari-Power
- High-Speed Sync
- Auto WB Adjustment
- Wireless Ratio Control
- Weight: 15.6 oz

SONY
16-80mm f/3.5-4.5 Carl Zeiss T* DT Digital Lens

- *Designed exclusively for Digital SLRs*
- Ideal for snapshots, portraits, interiors, or outdoor scenery
- 35mm equiv: 24-120mm
- Min. focus: 13.8"
- 62mm filter diameter
- Weight: 15.5 oz

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October 1-9.....Closed

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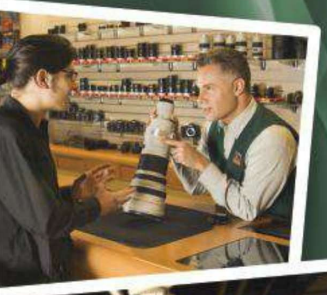

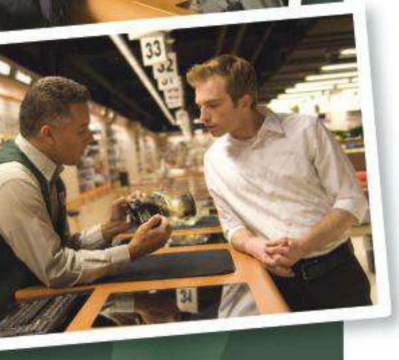

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Canon Digital Rebel T3i DSLR

- 3" Clear View Vari-Angle LCD
- Uses Canon EF Lenses (1.6x factor)
- SDHC/SDXC Card Slot
- 3.7 fps Continuous Shooting
- ISO 100-6400
- RAW + JPEG Files
- Full HD Movie Mode with Manual Exposure
- 63 Zone Dual-Layer System/9 Point AF

Expires 9-1-12

Body Only..... #CAEDRT3I ..... —
Kit with 18-55mm IS..... #CAEDRT3IK ..... ***$100 Rebate!***
T3 Kit *with 18-55mm IS* ..... #CAEDRT3K ..... ***$50 Rebate!***

18 Mega Pixels

Canon Digital Rebel T4i DSLR

- STM Lens Support for Quiet AF in Movies
- DIGIC 5 Image Processor
- 3.0" Vari-Angle Touch Screen LCD
- Uses Canon EF Lenses (1.6x factor)
- SDHC/SDXC Card Slot
- ISO 100-12800, Expandable to 25600
- Full HD Movie Mode with Continuous AF
- 5.0 FPS • Multi Shot Noise Reduction

Body Only..... #CAEDRT4I.....
Kit with 18-55mm IS..... #CAEDRT4IK .....
Kit with 18-135mm IS..... #CAEDRT4IKZ.....

18 Mega Pixels

Canon EOS-60D DSLR

- 1920 x 1080 HD Video Capture
- DIGIC 4 Image Processor
- SD/SDHC/SDXC Card Slot
- Works with all Canon EF & EF-S Lenses • Vari-Angle Clear View 3.0" Flip-Out LCD
- HDMI Output to HDTV
- 5.3 fps Continuous Shooting
- ISO 6400 - Expandable to 12800

Body Only..... #CAE60D..... ***$100 Rebate!***
Kit with 18-135mm IS..... #CAE60D18135 ..... ***$100 Rebate!***
Kit with 18-200mm IS ..... #CAE60D18200..... ***$100 Rebate!***

Expires 9-1-12

18 Mega Pixels

Canon EOS-5D Mark III DSLR

- 3.2" Clear View High Resolution LCD
- DIGIC 5+ Image Processor
- 61-Point High Density AF
- Uses Canon EF Lenses
- Dual CF, SD Card Slots
- Extended ISO Range (50-102400)
- Built-In HDR & Multiple Exposure Modes
- Full HD 1080/30p and 720/60p Formats

Body Only..... #CAE5D3*.....
Kit with 24-105mm L IS..... #CAE5D324105.....
5D Mark II *Body Only*..... #CAE5D2..... ***In Stock***
5D Mark II Kit *with 24-105mm L IS*. #CAE5D224105..... ***In Stock***

22 Mega Pixels

Canon EOS-7D DSLR

- Record HD Video • 3" LCD
- Uses Canon EF Lenses
- CF, MD Card Slot
- Dust and Weather Resistant
- Selectable Video Exposure and Frame Rates
- ISO 100-6400 (expandable to 12800) • 8 fps Burst Mode
- 19-Point, All Cross-Type AF System

Body Only..... #CAE7D .....
Kit with 18-135mm IS..... #CAE7D18135.....
Kit with 28-135mm IS..... #CAE7D28135.....

18 Mega Pixels

Canon EOS-1Dx DSLR

- Dual DIGIC 5+ Image Processors
- Magnesium Alloy Body
- Eye-Level Pentaprism Viewfinder
- 3.2" LCD Monitor
- Uses Canon EF Lenses
- Dual CF card slots
- 1920 x 1080 HD Video Capture
- Live View Still and Video Recording
- 61-Point High Density Auto Focus

Body Only..... #CAE1DX*.....

18 Mega Pixels

Canon SLR Lenses and Flashes

*** NEW! Instant Rebates on Lenses & Speedlites up to $300** Expires 9-1-12

EOS Flash System (USA)

270EX.....
270EX II ..... ***$15 Rebate****
320EX.....
430EX II ..... ***$30 Rebate****
580EX II .....
600EX-RT..... ***$50 Rebate****
MR-14EX Ringlight..... ***$45 Rebate****
MT-24EX Twin Flash..... ***$60 Rebate****

EF-S Lenses for Digital Only (USA)

(Not compatible with full frame cameras)

60/2.8 USM Macro (52ø)..... ***$60 Rebate****
10-22/3.5-4.5 USM (77ø)..... ***$100 Rebate****
15-85/3.5-5.6 IS USM (72ø)..... ***$105 Rebate****
17-55/2.8 IS USM (67ø)..... ***$120 Rebate****
17-85/4-5.6 IS USM (67ø) .....
18-55/3.5-5.6 IS (58ø) .....
18-135/3.5-5.6 IS (67ø) .....
18-200/3.5-5.6 IS (72ø) .....
55-250/4.0-5.6 IS USM (58ø) .....

EF Lenses (USA)

24/2.8 IS USM (58ø).....
28/2.8 IS USM (58ø).....
35/2 (52ø).....
50/1.8 II (52ø) .....
28/1.8 USM (58ø)..... ***$60 Rebate****
20/2.8 USM (72ø)..... ***$50 Rebate****
40/2.8 STM Pancake (52ø).....
50/2.5 Macro (52ø).....
50/1.4 USM (58ø)..... ***$40 Rebate****
MP-E 65/2.8 1x-5x Macro (58ø).....
85/1.8 USM (58ø)..... ***$50 Rebate****
100/2 USM (58ø).....
100/2.8 USM Macro (58ø)..... ***$50 Rebate****
135/2.8 (52ø).....
28-135/3.5-5.6 IS USM (72ø) .....
70-300/4-5.6 IS USM (58ø) .....
70-300/4.5-5.6 DO IS USM (58ø).....
75-300/4.0-5.6 III (58ø).....
75-300/4.0-5.6 III USM (58ø).....

TS-E MF Lenses (USA)

17/4.0 "L"..... ***$200 Rebate****
24/3.5 "L" II..... ***$200 Rebate****
45/2.8 .....
90/2.8 .....

EF "L" Lenses (USA)

14/2.8 USM II..... ***$200 Rebate****
24/1.4 II (77ø)..... ***$150 Rebate****
35/1.4 USM (72ø)..... ***$150 Rebate****
50/1.2 USM (72ø)..... ***$180 Rebate****
85/1.2 USM II (72ø)..... ***$200 Rebate****
100/2.8 IS USM Macro (67ø)..... ***$120 Rebate****
135/2.0 USM (72ø).....

EF "L" Lenses (USA)

180/3.5 USM Macro (72ø)..... ***$150 Rebate****
200/2.8 USM II (72ø) .....
200/2.0 IS USM (52ø) .....
300/4.0 IS USM (77ø) .....
300/2.8 IS USM II (52ø rear).....
400/5.6 USM (77ø).....
400/2.8 IS II (52ø rear).....
500/4 IS USM II (52ø rear).....
600/4.0 IS II (52ø rear).....
8-15/4.0 Fish-eye USM..... ***$150 Rebate****
16-35/2.8 USM II (82ø)..... ***$170 Rebate****
17-40/4.0 USM (77ø)..... ***$100 Rebate****
24-70/2.8 USM (77ø) .....
24-70/2.8 II USM (82ø).....
24-105/4 IS USM (77ø).....
28-300/3.5-5.6 IS USM (77ø) .....
70-200/4.0 USM (67ø) .....
70-200/4.0 IS USM (77ø)..... ***$150 Rebate****
70-200/2.8 USM (77ø) .....
70-200/2.8 IS II USM (77ø) ..... ***$300 Rebate****
70-300/4.0-5.6 IS USM (67ø) ..... ***$200 Rebate****
100-400/4.5-5.6 IS USM (77ø) ..... ***$170 Rebate****
1.4x III Teleconverter ..... ***$40 Rebate****
2x III Teleconverter ..... ***$40 Rebate****

Canon 600 EX-RT Shoe-Mount Flash — $50 REBATE!*

- Dust and water resistance
- Guide No. 197'
- Wireless Radio Multiple Flash System
- Bounce and Swivel Head
- Zoom Head (20-200mm)
- 18 Custom Functions
- Weight: 15 oz

Canon 10-22mm f/3.5-4.5 EF-S USM Digital Lens — $100 REBATE!*

- *Designed exclusively for Digital SLRs*
- 35mm equivalent: 16-35mm
- Min. Focus: 9.5"
- 3 aspherical lens elements
- 3.5-27 f/Stop Range
- 77mm filter diameter
- Weight: 13.6 oz

Canon 24-70mm f/2.8 EF "L" USM Zoom Lens

- Sealed and gasketed against dust and moisture
- Internal Focusing
- UD Element
- Two Aspherical Elements
- 2.8-22 f/Stop Range
- Focus 1.25' to Infinity
- 77mm filter diameter
- Weight 33.6 oz

Canon 70-200mm f/2.8 EF "L" IS II USM Telephoto-Zoom Lens — $300 REBATE!*

- Improved Optical Image Stabilization provides up to 4 stops correction
- Min. Focus: 3.9'
- Dust & moisture resistant
- 77mm filter diameter
- Weight: 52.56 oz

Nikon 1 J1 Mirrorless Digital Camera

- EXPEED 3 Dual Image Processor
- Interchangeable 1 NIKKOR Lens System
- 3.0" Anti-Glare Color LCD
- SD/SDHC/SDXC Card Slot
- Full HD (1080p) Movie Record Mode
- Motion Snapshot 1-Touch Photo Animation
- 10 fps Continuous Shooting in AF Mode
- Available in Black, Red, Silver or White
- Nikon Inc. limited warranty included

** Available in Black only

*Kit with 10-30mm VR**.....#NI1J1*.....**646.95**
Kit with 10mm & 10-30mm VR...#NI1J110.....**896.95**
Kit with 10-30 & 30-110mm VR..#NI1J11030.....**896.95**

10 Mega Pixels

Nikon D3200 DSLR

- EXPEED III Image Processor
- HD 1080p Video
- 3" LCD • Live View
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC/SDXC Card Slot
- 11-point Autofocus
- Up To ISO 12800
- Nikon Inc. limited warranty included

D3200 Kit Black *w/18-55mm VR ...#NID32001855*.....**699.95**
D3200 Kit Red *w/18-55mm VR.....#NID32001855R*.....**699.95**
D3100 Kit *with 18-55mm VR.....#NID31001855*.....**646.95**

24 Mega Pixels

Nikon D5100 DSLR

- 1080p HD Movies with Full Time AF
- Uses Nikon AF Lenses (1.5x factor)
- 3.0" Vari-angle LCD
- SD/SDHC Card Slot
- ISO Sensitivity 100-6400
- In-Camera Special Effects Mode
- In-Camera HDR (High Dynamic Range)
- Fast 11-Point Autofocus System
- Nikon Inc. limited warranty included

Body Only.....#NID5100.....**746.95**
Kit with 18-55mm VR.....#NID51001855.....**846.95**

16 Mega Pixels

Nikon D7000 DSLR

- EXPEED 2 Image Processor
- 1080p HD Video Capture
- RAW + JPEG Still Image Capture
- Accepts Nikon AF Lenses (1.5x factor) • 3" LCD Monitor
- Twin SD/SDHC/SDXC Card Slots
- 39-point AF System
- RGB 3D Matrix Metering System
- i-TTL Flash + Speedlight Compatibility
- Nikon Inc. limited warranty included

Body Only.....#NID7000.....**1,199.95**

16 Mega Pixels

Nikon D800 DSLR

- 35.9x24mm CMOS FX Format Sensor
- 3.2" LCD Monitor
- Nikon F Mount Lens Mount
- CF & SD Dual Card Slots
- Optical Low-Pass Filter
- Eye-Level Pentaprism Viewfinder
- 1920 x 1080/30/25/24p HD Video Capture • Matrix/Center-Weighted/Spot Metering
- Built-In Flash + i-TTL Flash Control
- Nikon Inc. limited warranty included

Body Only.....#NID800.....**2,999.95**

36 Mega Pixels

Nikon D4 DSLR

- RAW, TIFF, JPEG, RAW+JPEG Files
- FX-format (full-frame) CMOS Sensor
- 1080p HD Broadcast Quality Video
- EXPEED3 Image Processor
- 3.2" LCD Screen with Live View
- Compatible with Most Nikkor Optics
- Matrix, Center-Weighted, Spot Metering • 100-12800 ISO
- CF Type 1 & XQD Compatible
- Nikon Inc. limited warranty included

Body Only.....#NID4.....**5,999.95**

16 Mega Pixels

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AF Flashes

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SB-700.....**326.95**
SB-910.....**546.95**
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18-200/3.5-5.6 G AF-S VR II (72ø).....**846.95**
18-300/3.5-5.6 G AF-S ED VR (77ø).....**999.95**
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55-200/4-5.6 G AF-S VR (52ø).....**246.95**
55-300/4.5-5.6 G AF-S VR (58ø).....**396.95**

D-Type AF Lenses

14/2.8 D ED
16/2.8 D (39ø) with Hood
20/2.8 D (62ø)
24/2.8 D (52ø)
24/1.4 G AF-S ED (77ø)
24/3.5 D ED PC-E (77ø)
28/1.8 G AF-S (67ø).....**699.95**
28/2.8 D (52ø)
35/2.0 D (52ø)
35/1.4 G AF-S ED (67ø)
45/2.8 D ED PC-E Micro (77ø)
50/1.8 D (52ø)
50/1.8 G AF-S (58ø).....**216.95**
50/1.4 D (52ø)
50/1.4 G AF-S (58ø)
60/2.8 D Micro (62ø) (1:1)
60/2.8 G AF-S ED Micro (62ø)
85/1.8 D (62ø) with Hood
85/1.4 D IF (77ø)
85/1.4 G AF-S (77ø)
85/1.8 G AF-S (67ø).....**499.95**
85/2.8 PC-E Micro (77ø)
105/2.8 G AF-S ED-IF VR Micro (62ø)
105/2.0 DC D with Hood (72ø)
180/2.8 D ED-IF (72ø)

D-Type AF Lenses

200/4 D ED-IF Micro with Case (62ø)
200/2 G AF-S ED-IF VR II (52ø)
300/4.0 D AF-S ED-IF (77ø)
300/2.8 G AF-S VR (52ø-R)
400/2.8 G AF-S VR ED (52ø)
500/4.0 G AF-S VR ED (52ø)
600/4.0 G AF-S VR ED (52ø)
14-24/2.8 G AF-S ED-IF.....**1,996.95**
16-35/4.0 G AF-S ED VR (77ø)
17-35/2.8 D AF-S ED-IF (77ø)
24-70/2.8 G AF-S ED-IF (77ø).....**1,886.95**
24-85/2.8-4.0 D IF (72ø)
24-85/3.5-4.5 G AF-S ED VR (72ø).....**599.95**
24-120/4.0 G AF-S ED VR (77ø).....**1,296.95**
28-300/3.5-5.6 G AF-S ED VR (77ø)
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TC-17E II (1.7x) Teleconverter
TC-20E III (2x) Teleconverter

Nikon 24-70mm f/2.8 G AF-S ED-IF Zoom Lens

- Optimized for edge-to-edge sharpness on both the Nikon FX (full-frame) and DX-format image sensors
- Rugged construction, dust and moisture resistance
- Minimum focus 1.2'
- 77mm filter diameter
- Weight 32 oz

Nikon 18-200/3.5-5.6 DX G VR II AF-S ED-IF Digital Lens

- *Designed exclusively for Digital SLRs*
- 35mm equiv. 27-300mm
- **VR II** Vibration Reduction
- SWM (Silent Wave Motor)
- 3.5-22 f/Stop Range
- Focus 1.6' to Infinity
- 72mm filter diameter
- Weight 19.8 oz

Nikon 70-200/2.8 G AF-S ED-IF VR II Telephoto-Zoom Lens

- **VR II** Vibration Reduction
- 3.5-22 f/Stop Range
- SWM (Silent Wave Motor)
- Close Focusing to 4.6'
- 77mm filter diameter
- Weight 3.2 lbs

Nikon SB-910 Speedlight i-TTL Shoe Mount Flash

- Tungsten & Fluorescent Filters Included
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- Zoom Head (17-200mm)
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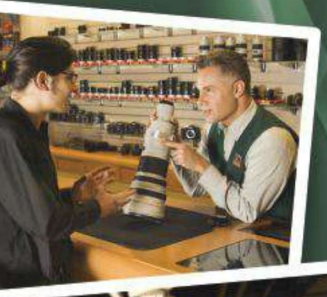

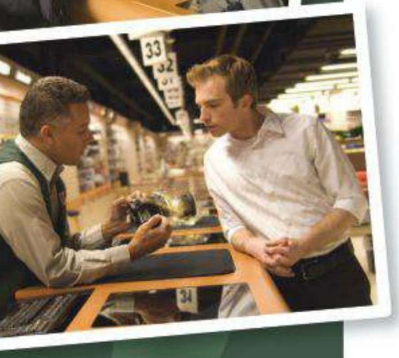

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C = Canon N = Nikon P = Pentax SM = Sony/Minolta SE = Sony E Mount ** Price After Rebate Exp. 9-30-12

		SKU #	Available for	Rebate	Price
Di-II	60/2.0 LD IF Macro (55ø)	#TA602DI*	C, N, SM	$100	424.00**
Di	90/2.8 Macro (55ø)	#TA9028M*	C, N, P, SM	$50	449.00**
Di	180/3.5 LD IF Macro (72ø)	#TA18035*	C, N, SM	$50	689.00**
Di-II	10-24/3.5-4.5 (77ø)	#TA102435*	C, N, P, SM	$50	449.00**
Di-II	17-50/2.8 XR LD IF Aspherical (67ø)	#TA175028*	C, N, P, SM	$75	424.00**
Di-II	17-50/2.8 XR VC LD IF Asph. (67ø)	#TA175028*Q	C, N	$100	549.00**
Di-II	18-200/3.5-6.3 (62ø)	#TA1820035*	C, N, P, SM	—	299.00
Di-III	18-200/3.5-6.3 VC (62ø) Black or Silver	#TA1820035S*	SE	—	739.00
Di-II	18-270/3.5-6.3 VC (72ø)	#TA1827035*	N	—	CALL
Di-II	18-270/3.5-6.3 VC PZD (62ø)	#TA18270*	C, N, SM	$100	549.00**
Di	24-70/2.8 VC USD (82ø)	#TA247028*	C, N, SM	—	1,299.00
Di	28-75/2.8 XR (67ø)	#TA287528*	C, N, P, SM	$25	474.00**
Di	28-300/3.5-6.3 XR LD (62ø)	#TA2830035XD*	C, P, SM	—	419.00
Di	28-300/3.5-6.3 XR VC (62ø)	#TA2830035*	C, N	—	629.00
Di	70-200/2.8 LD IF Macro (77ø)	#TA7020028M*	C, N, P, SM	—	769.00
Di	70-300/4.0-5.6 VC USD (62ø)	#TA70300*	C, N, SM	$100	349.00**
Di	75-300/4.0-5.6 LD (62ø)	#TA753004*	C, N, SM	—	164.00
Di	200-500/5-6.3 LD IF (86Cø)	#TA2005005*	C, N, SM	—	949.00
	1.4x SP AF Pro Teleconverter	#TA14XP*	C, N	—	224.00
	2x SP AF Pro Teleconverter	#TA2XP*	C, N	—	254.00

Tokina AF LENSES

DX – for Digital SLRs Only **FX** – Designed for full frame DSLRs ** Price After Rebate Exp. 9-30-12

** Also Available for Sony Alpha DSLR

		Canon EOS	Nikon AF	Rebate	Price
FX	100/2.8 Pro D Macro (52ø)	#TO10028PCAF	#TO10028PNAF	—	489.00
DX	10-17/3.5-4.5 ATX Fisheye	#TO1017735CAF	#TO1017735NAF	—	669.00
DX	11-16/2.8 Pro (77ø) **	#TO111628PDXC	#TO111628PDXN	$40	659.00**
DX	12-24/4.0 Pro II (77ø)	#TO12244DXC	#TO12244DXN	—	599.00
FX	16-28/2.8 Pro	#TO1628FXC	#TO1628FXN	$100	749.00**
FX	17-35/4 Pro (82ø)	#TO1735F4FXC	#TO1735F4FXN	$70	599.00**

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Metz

28 CS-2 Digital Slave Shoe Mount Flash	139.99
44 AF-1 Digital Shoe Mount Flash	199.99
50 AF-1 TTL Digital Shoe Mount Flash	249.99
58 AF-2 TTL Digital Shoe Mount Flash	399.99
45 CL-4 TTL Digital Handle Mount Flash	519.99
45 CL-4 TTL Digital Handle Mount Flash Kit	699.99
76 MZ-5 TTL Digital Handle Mount Flash	1,039.99

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Q-flash TRIO	875.00
Q-flash T5D-R	706.00
Q-flash T5D-R with Turbo SC Battery & Charger	1,172.00
Q-flash T5D-R with Turbo 3 Battery Kit	1,303.50

Batteries

Battery 1	224.00	Turbo Blade	466.00
Turbo SC	466.00	Turbo 3	624.00

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E-Flash Flat Panel Kit #SUFP38	58.95
PF20XD Digital Slave Shoe Mount Flash	44.95
RD-2000 Shoe Mount Flash	64.95
DF3000 Digital for Canon, Nikon, Sony	79.95
PZ-4000 AF TTL Shoe Mount f/Canon, Nikon	74.95
PZ-40x II AF TTL Shoe Mount f/Nikon (Silver)	69.95
PZ-42x AF TTL Shoe Mount for Canon, Nikon	145.95
622 Super Pro TTL Handle Mount Flash	196.95
622 Super Kit with Wide Angle Head	199.95

Vivitar

285HV Professional Auto	89.95
Pearstone SB-4 AC Adapter for 285HV #PESB4	14.95

SIGMA AF LENSES & FLASHES

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DC – for Digital SLRs Only • **DG** – Optimized for Digital SLRs

H – HSM Model with Canon, Nikon, Sigma
R – Rear Slip-in Gelatin Filter Slot

		Canon	Nikon	Pentax	Sigma	Sony	Rebate	Price
DC	4.5mm f/2.8 EX Circular Fisheye HSM R	#SI4528EXDCC	#SI4528EXDCN	#SI4528EXDCP	#SI4528EXDCSI	#SI4528EXDSO	—	899.00
DG	8/3.5 EX Circular Fisheye R	#SI835CA	#SI835NA	—	#SI835SI	#SI835SO	—	899.00
DC	10mm f/2.8 EX Fisheye HSM R	#SI1028EXDCC	#SI1028EXDCN	#SI1028EXDCP	#SI1028EXDCSI	#SI1028EXDCSO	$50	599.00**
DG	15/2.8 EX Diagonal Fisheye R	#SI1528DGCAF	#SI1528DGNAF	#SI1528DGPAF	#SI1528DGSA	#SI1528DGMAF	—	609.00
DG	20/1.8 EX DF RF Aspherical (82ø)	#SI2018CAF	#SI2018NAF	#SI2018PAF	#SI2018SA	#SI2018MAF	—	629.00
DG	24/1.8 EX DF Aspherical Macro (77ø)	#SI2418MCAF	#SI2418MNAF	#SI2418MPAF	#SI2418MSA	#SI2418MMAF	—	549.00
DG	28/1.8 EX DF Aspherical Macro (77ø)	#SI2818MCAF	#SI2818MNAF	#SI2818MPAF	#SI2818MSA	#SI2818MMAF	$50	399.00**
DC	30mm f/1.4 EX HSM (62ø)	#SI3014DCCAF	#SI3014DCNAF	#SI3014DCPAF	#SI3014DCSA	#SI3014DCMAF	—	489.00
DG	50mm f/1.4 EX (77ø) H	#SI5014C	#SI5014N	#SI5014PE	#SI5014SI	#SI5014SOM	$50	449.00**
DG	50/2.8 EX Macro (55ø)	#SI5028MDGCAF	#SI5028MDGNAF	#SI5028MDGPAF	#SI5028MDGSA	#SI5028MDGMAF	—	369.00
DG	70/2.8 EX Macro (62ø)	#SI7028MDGCA	#SI7028MDGNA	#SI7028MDGPA	#SI7028MDGSA	#SI7028MDGSAQ	—	499.00
DG	85/1.4 EX HSM (77ø)	#SI8514C	#SI8514N	#SI8514P	#SI8514SI	#SI8514S	—	969.00
DG	105/2.8 EX Macro OS HSM (62ø)	#SI10528MDGCE	#SI10528MDGNQ	—	#SI10528MDGS	#SI10528MDGSM	$200	769.00**
DG	150/2.8 EX APO Macro OS HSM (72ø)	#SI15028AMOC	#SI15028AMON	#SI15028AMOP	#SI15028AMSI	#SI15028AMOS	—	1,099.00
DG	300/2.8 APO EX HSM	#SI30028DGCAF	#SI30028DGNAF	#SI30028DGPAF	#SI30028DGSA	#SI30028DGMAF	—	3,399.00
DG	500/4.5 APO EX HSM	#SI50045DGCAF	#SI50045DGNAF	#SI50045DGPAF	#SI50045DGSA	#SI50045DGMAF	—	4,999.00
DC	8-16/4.5-5.6 HSM	#SI8164556CA	#SI8164556NI	#SI8164556PE	#SI8164556SI	#SI8164556SO	$50	649.00**
DC	10-20/4-5.6 EX HSM (77ø)	#SI102045DCAF	#SI102045DNAF	#SI102045DPAF	#SI102045DSA	#SI102045DMAF	—	479.00
DC	10-20/3.5 EX HSM (82ø)	#SI102035C	#SI102035SN	#SI102035P	#SI102035SG	#SI102035S	—	649.00
DG	12-24/4.5-5.6 EX Aspherical HSM II	#SI122445C	#SI122445N	#SI122445P	#SI122445SI	#SI122445S	$75	874.00**
DC	17-50/2.8 EX OS HSM (77ø)	#SI175028CA	#SI175028NI	#SI175028PE	#SI175028SI	#SI175028SO	$50	619.00**
DC	17-70/2.8-4.0 OS Macro HSM (72ø)	#SI177028DCC	#SI177028DCNQ	#SI177028DCP	#SI177028DCSI	#SI177028DCSM	—	469.00
DC	18-50/2.8-4.5 OS HSM (67ø)	#SI185028DOC	#SI185028DON	#SI185028DOP	#SI185028DOSG	#SI185028DOS	—	199.00
DC	18-125/3.8-5.6 OS (Optical Stabilizer) (67ø) H	#SI18125350SC	#SI18125350SN	#SI18125350SP	#SI18125350SI	#SI18125350SS	—	339.00
DC	18-200/3.5-6.3 OS II HSM (72ø)	#SI1820035CQ	#SI1820035NQ	#SI1820035P	#SI1820035SAQ	#SI1820035SQ	—	499.00
DC	18-250/3.5-6.3 OS HSM (72ø)	#SI1825035C	#SI1825035N	#SI1825035CP	#SI1825035S	#SI1825035CSN	$50	429.00**
DG	24-70/2.8 EX IF HSM (82ø)	#SI247028C	#SI247028NF	#SI247028PS	#SI247028S	#SI247028SM	$75	824.00**
DC	50-150/2.8 EX APO OS HSM (77ø)	#SI5015028CA	#SI5015028NA	—	#SI5015028SAF	—	$100	999.00**
DC	50-200/4-5.6 OS HSM (55ø)	#SI5020045DOC	#SI5020045DON	#SI5020045DOP	#SI5020045DSG	#SI5020045DOS	—	159.00
DG	50-500/4.5-6.3 APO OS HSM (95ø)	#SI505004563C	#SI505004563N	#SI505004563P	#SI505004563SA	#SI505004563SM	$150	1,509.00**
DG	70-200/2.8 EX APO OS HSM (77ø)	#SI7020028CQ	#SI7020028NI	#SI7020028P	SI7020028SIQ	#SI7020028SOQ	$100	1,299.00**
DG	70-300/4-5.6 DL Macro Super II (58ø)	#SI703004SCAF	#SI70300456N	#SI703004PAF	#SI703004SA	#SI703004MAF	—	169.00
DG	70-300/4-5.6 APO Macro Super II (58ø)	#SI703004DGCA	#SI70300456AN	#SI703004DGPA	#SI703004DGSA	#SI703004DGMA	—	239.00
DG	70-300/4-5.6 OS (62ø)	#SI7030045C	#SI7030045N	#SI7030045P	#SI7030045S	#SI7030045SM	$50	309.00**
DG	120-300/2.8 EX APO OS HSM (105ø)	#SI12030028C	#SI12030028N	#SI12030028P	#SI12030028SI	—	—	3,199.00
DG	120-400/4.5-5.6 APO OS HSM (77ø Rear)	#SI120400C	#SI120400N	#SI120400P	#SI120400S	#SI120400SQ	—	999.00
DG	150-500/5-6.3 APO OS HSM	#SI150500C	#SI150500N	#SI150500P	#SI150500S	#SI150500M	—	1,069.00
DG	1.4x EX APO Tele-Converter	#SI1.4XDGCAF	#SI1.4XDGNAF	#SI1.4XDGPAF	#SI1.4XDGSA	#SI1.4XDGMAF	—	249.00
DG	2x EX APO Tele-Converter	#SI2XDGCAF	#SI2XDGNAF	#SI2XDGPAF	#SI2XDGSA	#SI2XDGMAF	—	299.00
DG	EF-610 ST	#SIEF610STC	#SIEF610STN	#SIEF610STP	#SIEF610STSI	#SIEF610STS	$20	145.00**
DG	EF-610 Super Flash	#SIEF610C	#SIEF610N	#SIEF610P	#SIEF610SI	#SIEF610S	$30	225.00**
DG	EM-140 TTL Ringlight	#SIEM140DGC	#SIEM140DGN	#SIEM140DGP	#SIEM140DGS	#SIEM140DGM	—	379.00

SIGMA
18-200mm f/3.5-6.3 DC II OS HSM Digital Lens
- *Designed exclusively for Digital SLRs*
- Focus 1.5' to Infinity
- Mag. ratio: 1:3.8
- 72mm filter diameter
- Weight: 17.3 oz

SIGMA
70-200mm f/2.8 EX APO OS HSM DG Lens
- *Desirable for Digital SLRs*
- Minimum focus: 4.59'
- 34-12.3° angle of view
- 77mm filter diameter
- Tripod collar
- Weight: 50.4 oz

$100 REBATE!

TAMRON
60mm f/2.0 LD IF Macro Di-II Digital Lens
- *Designed exclusively for Digital SLRs*
- Minimum Focus 9.1'
- 55mm filter diameter
- Weight 14.1 oz

$100 REBATE!

Tokina
11-16mm f/2.8 Pro DX AT-X Fisheye Digital Lens
- *Designed exclusively for Digital SLRs*
- WR (Water Repellent) coating
- Minimum Focus 1'
- Magnification ratio 1:11.6
- Weight 1.2 lb

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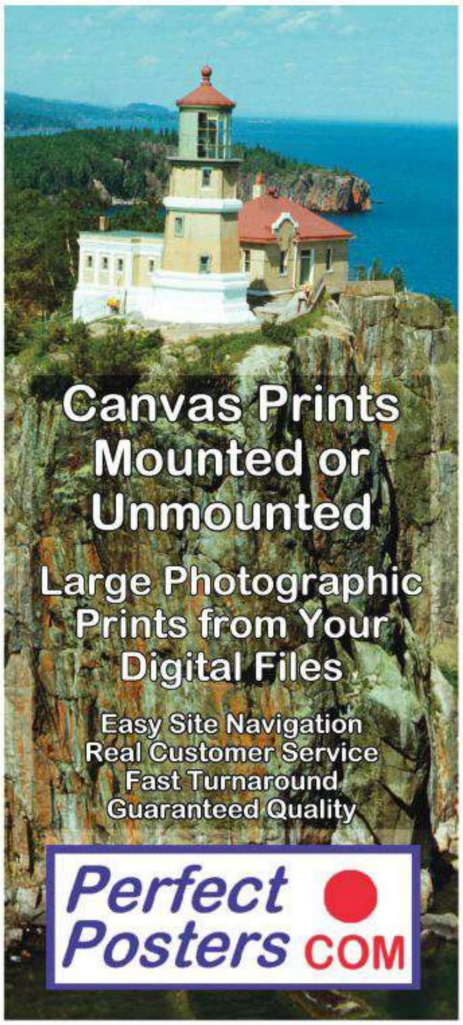

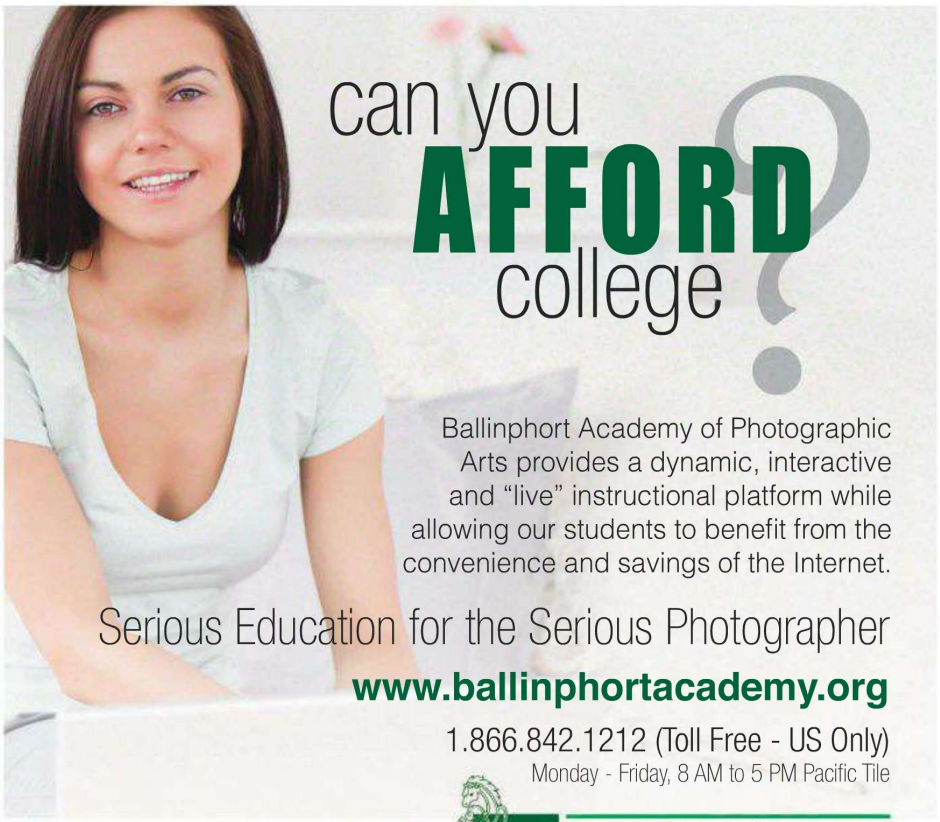
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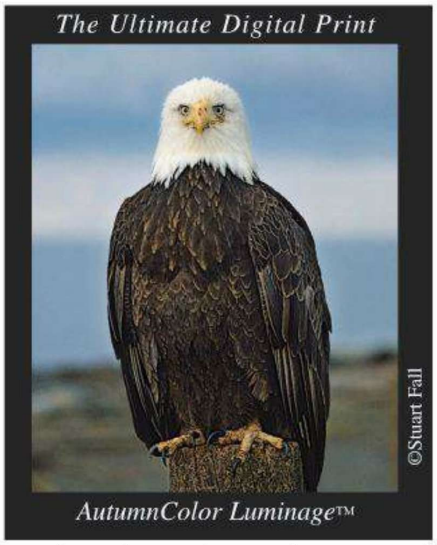

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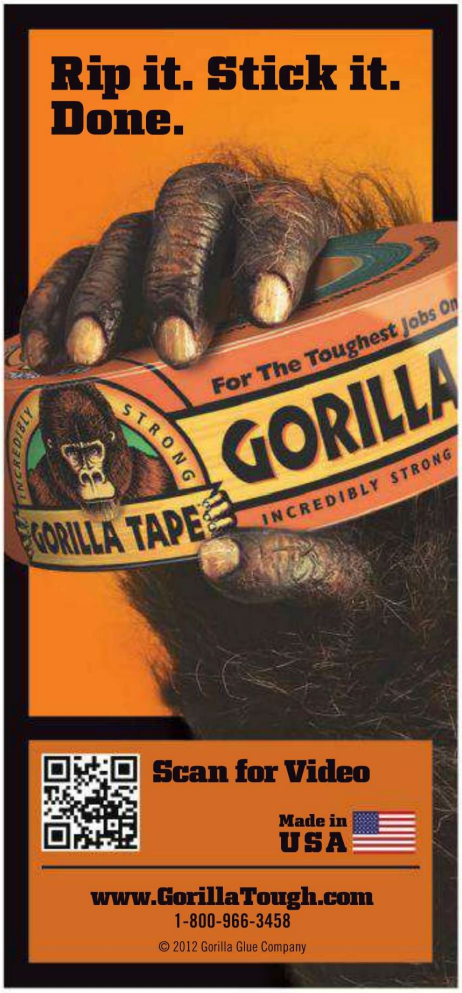

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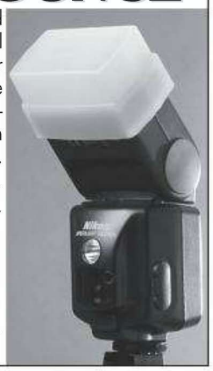

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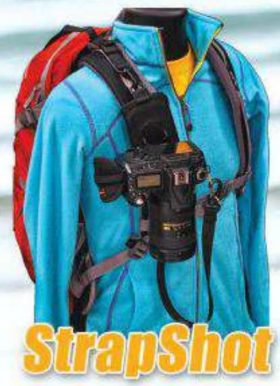

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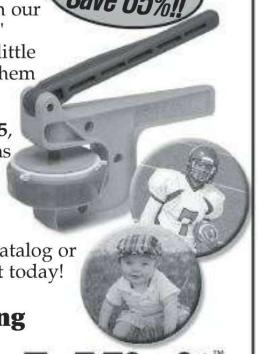

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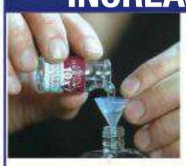

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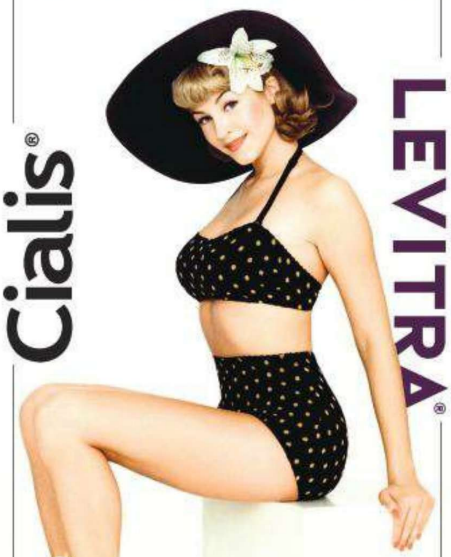

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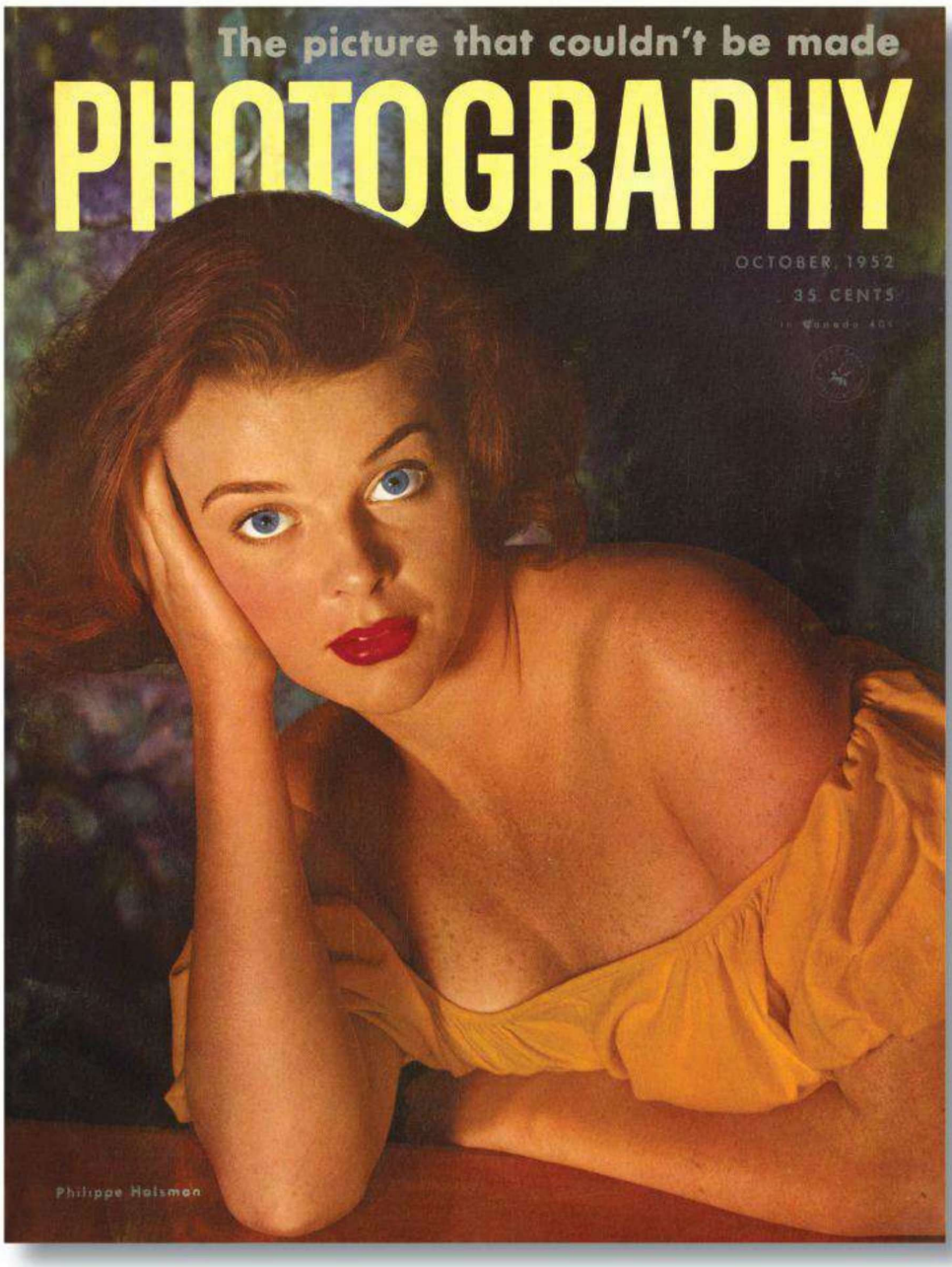

▲ Blue-Eyed Beauty

Philippe Halsman was commissioned by *Life* to go to Hollywood to photograph young actresses. Among his subjects: Diana Cassidy, who at the time of publication could be seen in MGM's musical "Because You're Mine." Shooting at the home of one of his friends, he used a 5x7-inch Graflex fitted with a 10-inch f/4.5 Bausch & Lomb Tessar lens. Exposure was f/22 on Kodak Ektachrome Daylight film, using electronic flash lighting.

60 YEARS AGO

Ray Hellreigel encouraged amateurs to photograph house fires.

▼ Italian Masterpiece

The Italian Rectaflex was one of the earliest 35mm eye-level SLRs. Along with East Germany's Zeiss Contax D, it was a forerunner of a new breed of cameras. The Rectaflex incorporated a ground-glass screen with a rangefinder for critical eye-level viewing and focusing, a focal-plane shutter with speeds up to 1/1000 sec, and a range of innovative features. Though dubbed a "masterpiece" by an enthusiastic copywriter, it failed to find a market and is now a novelty collectible. The original price: $295, with a very good f/2 Schneider Xenon lens.

▲ Real-Life 3-D

This issue appeared in the midst of the 3-D stereo mini-boom, with Stereo-Realist as the market leader. What better way to prove it than to show John Wayne and Nancy Olson enjoying the results of their stereo photography? In time, the 3-D boomlet passed into history and the Stereo-Realist was added to a growing family of collectible curios.

▲ Photography Goes to High School

Armand Zotian, a student at William Cullen Bryant High School in Queens, NY, uses his Contax S to document various study projects. As shown in this photo of him recording reference material in the school library, he combined schoolwork with photography. According to author Walter Fischman, Armand first brought this camera to school to impress a fellow (female) student—and get a date for the junior prom.

—Harold Martin

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CONTINUED FROM PAGE 81

lens by ILC standards, totally dwarfing the NX20. (In fact, it's several ounces heavier than Nikon's full-frame 85mm f/1.4.) Despite this size, however, the lens casts no shadow when used with the NX20's built-in flash.

In field tests, the SSA focusing motor proved very nearly silent. Because the f/1.4 glass elements are so large, its AF speed, while acceptable, wasn't the fastest. As you can see from the Test Results box, the lens offers top-drawer optics, producing inconsequential levels of light falloff and distortion.

We were impressed with the i-Function and i-Zoom controls, which offer a new level of convenience to control setting. They take some getting used to, however. Occasionally, we would reach up to fine-tune focus, and found ourselves adjusting white balance instead!

What we liked most about the lens was the incredible images made possible by that f/1.4 aperture: Its smoothly defocused portrait backgrounds were killer. We also liked the low-light performance. Between the bright f/1.4 aperture and the lens-based controls (see our test of the NX20 on page 76), we were pleased with this lens and the growing Samsung system that it has joined. —*Julia Silber*

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8.0	96.9	96.0	93.8	89.0	83.1
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CONTINUED FROM PAGE 69

13 External storage: If you're shooting huge and/or a lot of files, an external drive may make more sense than a pile of memory cards. Devices such as Canon's Wireless File Transmitter WFT-E4 II A (below), can upload images to a computer as you shoot them. In the field? Carry a Wi-Fi enabled portable drive.

THIRD-PARTY ADD-ONS

14 Grip accessories: Myriad grip add-ons that fit into the hot shoe or attach to the tripod socket are available for DSLRs and ILCs. Among our favorites are Match Technical's Thumbs Up grips, which make a vertical hold on rangefinder-type cameras much easier and more secure.

The Wireless File Transmitter for the EOS 5D Mark II is one of several models Canon offers for its higher-end DSLRs. Don't need this kind of transfer power? Check out Eye-Fi SD cards.

15 Tripod QR plates: Nature and studio shooters keep them on their cameras at all times, and if you're a regular tripod user, so should you. Have multiple cameras? Put plates on all of them—it will save a lot of time and grief.

16 LCD accessories: Getting exasperated trying to make out images or control readouts on an LCD in bright daylight? The best solution is a viewing hood, like those made by the aptly named Hoodman company. Among the many varieties it carries is a full-coverage hood with attached magnifier loupe. You can also get attachment straps for keeping it on the camera—great for video shooting.

17 Protective cladding or other covering: An endless variety of these can be found, so we asked nature shooter Tim Fitzharris what he uses: LensCoats. These waterproof neoprene sleeves protect against dings and nicks, and are available in a variety of camouflage patterns for shooting skittery critters.

18 Bubble level: They're a cheap, accurate, eminently portable solution to off-kilter horizons. Buy several. They're easily lost—trust us.

19 Light modifiers for pop-up flash: When we think of flash add-ons, we usually think of ones for shoe-mount flashes, but there are plenty of them for pop-ups, too. One of the neater ones is the Gary Fong Puffer, which can be mounted on most any pop-up flash via the hot shoe. It both diffuses and bounces the flash light, and folds flat for storage.

20 Eye-Fi cards: Possibly the most elegant Wi-Fi camera connection there is, Eye-Fi is an SD memory card with a built-in transmitter that can automatically upload your pictures to a computer or social networking site, or directly to a smartphone or tablet.

Don't Go There

A number of third-party companies and shareware sites offer firmware modifications for various cameras. We recommend against them. Not only will they void the camera's warranty, but they can void the camera, too—in a second, your DSLR can become a paperweight.

If you absolutely, have to, have to, try one of them (and some sound intriguing—one enables extreme high shutter speeds in a compact, for example), do it in a camera you won't mind lunching. An old compact, say.

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LAB * LENS TEST

CANON EF 40MM F/2.8 STM

CONTINUED FROM PAGE 82

electronic MF works so smoothly that most users will assume it's the usual mechanical type.

In field tests of the stepping motor in video and live-view modes, we found a dramatically more streamlined AF experience than had been possible in the EOS system. In Movie Servo AF mode, AF is fast and remarkably quiet; its continuous AF during video capture augurs more fluid movie-making with future Canon EOS bodies. It works best with slower-moving subjects, however.

In our lab tests, the lens turned in Excellent-range SQF numbers for sharpness and contrast. But what we really appreciated was the near-complete absence of distortion. Its Slight 0.11% barreling teetered at the cusp of Imperceptible. Both light falloff (gone at f/4) and magnification (1:4.9) were up to snuff.

A welcome addition to Canon's line, the new 40mm could pave the way for more pancakes. Its optical strengths, responsiveness, and tiny size make it a compelling alternative to Canon's 50mm f/1.8 II ($107, street). Rebel shooters will find in this 64mm equivalent an excellent everyday lens that extends just enough into the tele range for portraits. Another likely audience? Wedding and event photographers, who may need to haul out a 2-pound 24–70mm f/2.8 a little less often. *—Julia Silber*

SUBJECTIVE QUALITY FACTOR

Our standard lens test, SQF rates sharpness by print size

40 MM

Size	5x7	8x10	11x14	16x20	20x24
2.8	98.7	95.7	93.4	88.8	83.3
4.0	96.9	95.9	93.6	88.3	84.2
5.6	96.9	96.0	93.8	89.6	84.7
8.0	96.8	95.9	93.6	89.3	84.3
11.0	96.6	95.5	93.0	88.3	82.7
16.0	96.1	94.9	92.1	86.7	80.0
22.0	95.5	94.1	90.8	84.1	75.9

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YOU'VE SPENT A SMALL FORTUNE ON YOUR CAMERA AND LENSES. WHY BREAK THE BANK FOR YOUR LIGHTING GEAR?

Adorama's Flashpoint II monolights make sophisticated location lighting affordable—powering up from Adorama's new, dedicated battery pack. Unlike conventional monolights, you don't need on-site electricity to use them. And when you get back to the studio, just plug them in for AC operation. There's no need for separate lighting kits!

Flashpoint II monolights boast specs and features you'd normally find only in much more expensive strobes, such as:

- A rugged metal housing, rather than the usual plastic
- A quiet built-in fan (models 620M and 1220M) for cooling
- Stepless output down to 1/32 power, for precise adjustment
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Those remarkable features make Flashpoint II monolights the best deal you can get in a serious strobe!

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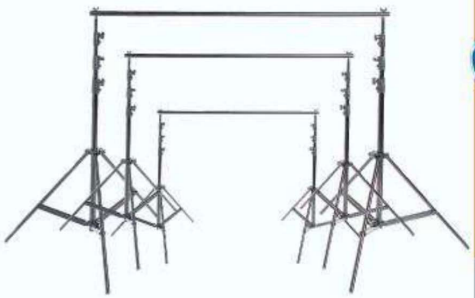

The background stand comes with interlocking 4 section crossbar. and a handy carrying bag with compartments.

The top of the stand meets the crossbar there is a screw and wing nut to keep the crossbars secured to the stands.

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LIGHTING REPORT

Lush Light

Flashpoint 500 LED Light

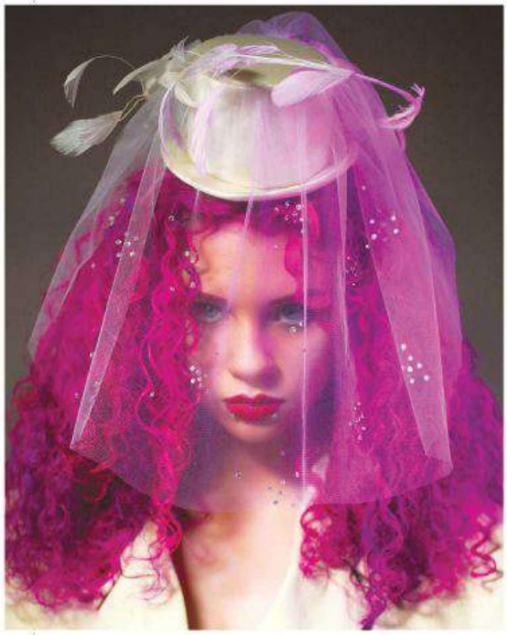
Model: Cory Nova
Hat: Ellen Christine Millinery
Photographer: Sandy Ramirez

The affordable Flashpoint 500 LED light lets your subject look hot and stay cool By Marvin Good

Soft light is often best for studio portraiture, whether you're shooting a glamorous model or a soccer mom. It flatters facial features, hides skin flaws, and lessens distracting shadows. And the good news is that soft light doesn't have to be expensive: The affordable Flashpoint LED 500 light lessens the need for costly strobes fitted with bulky softboxes or rigid beauty dishes.

This compact, daylight-balanced unit is AC-powered (you just plug it into a 110V or 220/240V wall socket, or a battery pack) and completely self-contained. Unlike strobes or "hot" light, it doesn't require extra attachments to produce the even, flattering illumination shown in this fashion shot by photographer Sandy Ramirez—an image created with two Flashpoint 500 LED lights, each mounted in its supplied yoke, which allows full angular control (right). One was placed several feet above the model's face, the other right behind her as a hair light.

The six-pound Flashpoint 500 LED achieves that softness with hundreds of tiny LEDs spread across its 7x13-inch surface. This produces light similar to what you'd get from a small strobe with an attached softbox, gentle yet with a directional quality that brings out the subject's contours. (Directionality and spread can be further controlled with the unit's four built-in barn doors.) What's more, the LEDs produce little appreciable heat, which is why Ramirez's model never broke a sweat—a cool environment that sitters ever subjected to tungsten light are sure to appreciate. Yet LED light gives you the advantage long associated with "hot" light and not possible with strobe, that "What you see is what you get."



What's more, the Flashpoint 500 LED gives you complete control over your lighting ratio by means of two rheostat knobs. Each allows you to separately dim or turn off 250 of its 500 LEDs. Yet even at full power, this affordable unit draws a mere 42 watts of power, less than a household lamp. You'll save money on more than just electricity, though. The Flashpoint 500 LED now sells for less than $200—with a light stand thrown in!

The Flashpoint 500 LED light is available exclusively from ADORAMA, for $199. To order, visit the Adorama store, *Adorama.com*, or call (800) 223-2500.

SCAN TO GET YOURS TODAY

CONTINUED FROM PAGE 56

"VU JÀDÉ," TARGHEE NATIONAL FOREST, ID
Lough made the image with his Arca-Swiss F-line 8x10 view camera and 300mm f/5.6 Fujinon-W lens on Fujichrome Astia 100F Professional, 4 sec at f/64. (Lough calls the opposite of *déjà vu, vu jàdé*—the sensation of knowing you're seeing something for the very first time.)

What are the drawbacks of digital for your kind of work, and the advantages?

The digital Arca-Swiss RL3d field camera with Rodenstock HR lenses—among the sharpest in the world—weigh a lot less than my 8x10 system. The dynamic range is greater, but the extreme angulations of the lens to the sensor can create issues when tilts and shifts are applied.

Most of the participants in your workshops are using digital SLRs. As a large-format film shooter, what sort of different perspectives can you bring to them?

That's kind of like, having read *The Shining*, asking Stephen King what kind of typewriter he used. A camera is simply a box that lets light in—it's a tool in the toolbox. What kind of camera you use almost doesn't matter, and I've told people for years that you could bring a pink Barbie-doll camera to a workshop if you wanted. And we have people bringing everything from 8x10s to iPhones—really—on workshops. At workshops, size doesn't matter.

But with digital you see the picture right away, with film you have to wait. You can't chimp film.

True, but by the same token you can't chimp a digital shot either, to some extent. Even though you can see it now, good or great imagery is not a function of the camera—film, or digital, or motion. It's a function of the person behind the camera. That will always be true, otherwise everyone with an iPhone would be an instant Ansel Adams.

Didn't Ansel explain this best when he described previsualization? How does the concept of previsualization change simply because the capture is different? And [good] film shooters double- and triple-check their exposure, lens, aperture, et cetera, before, during, and after the shot is taken, which is something everyone should be doing, regardless of format.

Many of the images in the book are very brief moments: rainbows, the sun just slipping behind a cloud. How do you manage to capture those with big, cumbersome 8x10 cameras?

Using any camera system is sort of like learning to dance for the first time—in the beginning you're usually not very pretty at it. But after a little practice and then a bit more, you get better. So while it might be perceived that the 8x10 camera is, well, yes, big and cumbersome. it's really just a matter of learning from your mistakes. I've made plenty of mistakes over the years—the worst was having loaded my film in upside down, and after processing, it turned out to be a very orange sheet of film. But to answer your question: Plan, hike,

scout, repeat. A friend pointed me to a blog a while ago where it said I was not being very efficient by hiking into remote areas, and that I was wasting my time by "wandering around hoping to find something." I had to laugh. I mean, really, how do these folks think these images come to be, Google Maps?

You don't use color filters in your work. What about polarizers, or split neutral-density filters?

No color filters, no polarizer. All I have is a graduated neutral-density filter. Call me a purist. I'm not real keen on faking it. If I wanted to fake stuff, I should have become a painter.

You insist on scanning, and printing your images yourself. Tell us why.

My goal has always been, and will always be, to get back to what I saw when I was standing there. Usually that means no one else was there, and that leaves it to me to make sure the final image is as perfectly accurate as it can be. That responsibility falls on my shoulders, not some dude in Timbuktu.

If you could tell our readers just one thing that would improve their image-making, what would it be?

Don't look at what's right with your composition, look at what's wrong. Usually it's pretty easy to see the big huge pretty mountain yelling at you, "Photograph me!" Getting rid of the extraneous elements—not as easy.

We're pretty sure Stephen King works on a Mac.

I'm pretty sure it's a No. 2 pencil.

See more of Rodney Lough's photos and his workshop schedule at rodneyloughjr.com.

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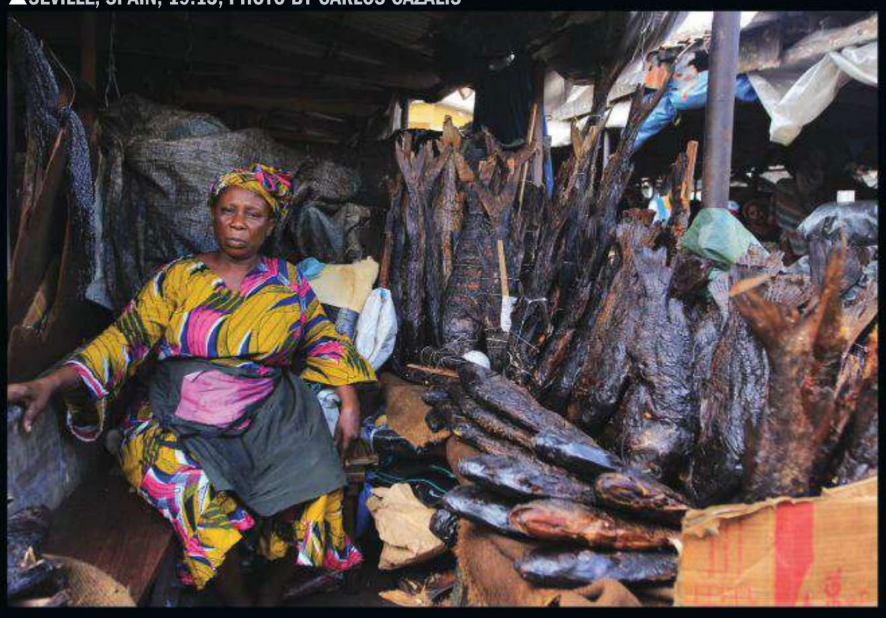
IN OUR TIME

CONTINUED FROM PAGE 66

▲LANCASTER, PENNSYLVANIA, USA, 09:38; PHOTO BY TRINITY KING

▲SEVILLE, SPAIN, 19:13; PHOTO BY CARLOS CAZALIS



▲PORT HARCOURT, NIGERIA, 15:19; PHOTO BY JIDE ODUKOYA

Having all this information keeps the size of the database from overwhelming viewers—a very different experience from looking for image information on a more traditional photo-sharing site such as Flickr. It will also make *A Day in the World* more valuable to researchers well into the future, a crucial goal of the project's designers.

Sociological considerations aside, *A Day in the World* succeeds simply as a vast gallery of contemporary photography in all its variety: banal and brilliant, off-hand and studied, poorly exposed and expertly captured.

To bring attention to the strongest pictures, the project's photo editors have created a series of selections of outstanding entries in various catagories, including "Home: My Wall," "Home: My Room," and from such countries as Bangladesh and Portugal. The website will also allow registered users to curate their own collections and to share them with friends or with the wider public.

And a panel of photo editors from all over the world combed through all of these and chose 1,000 photos (including all those in this article) for a book, also titled *A Day in the World*. To be published initially in 10 countries, this will come out in the U.S. and Canada in October 2012 from Earth Aware Editions. A public exhibition of photos from the project will travel the globe, starting in November.

The combination of the photos themselves and the information behind them—as well as the tremendous diversity of the photographers who participated—makes *A Day in the World* more than a photographic time capsule or an exercise in humanitarian tourism or a celebration of photography. It is a multifaceted reflection of the ways in which we tell the stories of our lives.

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BACKSTORY

Dress Pattern

Melanie Dunea captures a designer's work in motion

WHEN Carmen Marc Valvo asked me to shoot his fashion line for a new book, *Dressed to Perfection*, I was excited to try something different. This dress was so graceful that I wanted to capture its movement. I turned off the lights (except for a single modeling light facing the subject), set an exposure of about 4 sec, and had her move. The final image reminds me how well portraiture can capture a mood.

—As told to Lori Fredrickson

MELANIE DUNEA/CPI SYNDICATION

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